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Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Under RCRA (Resource Conservation and Recovery Act), Subtitle C, Section 3004
Interim Status Standards and General Status Standards for Closure and Postclosure Care (40 CFR 264 and 265, Subpart G)

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BACKGROUND DOCUMENT

STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES UNDER RCRA, SUBTITLE C, SECTION 3004

Interim Status Standards and General Status Standards for Closure and Postclosure Care (40 CFR 264 and 265, Subpart G)

This document (ms. 1941.10) provides background information and support for EPA's hazardous waste regulations

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This document is one of a series providing support for regulations issued by the U.S. Environmental Protection Agency (EPA) under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The regulations represent the initial effort for nationwide control of hazardous waste from point of generation, through transportation, treatment, and storage, to point of ultimate disposal.

This document covers standards applicable to hazardous waste management facilties, specifically the nontechnical aspects of closure and postclosure for facilities with "Interim Status"--that is, they were in existance on November 19, 1980 (the effective date of the regulations), have notified EPA of their activities, and have applied for a permit, which has not yet been processed.

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I. INTRODUCTION

This is one of a set of background documents accompanying the regulations promulgated under Subtitle C of the Resource Conservation and Recovery Act. These regulations represent EPA's initial efforts to control hazardous waste generation, transportation, treatment, storage and disposal.

This document, and the other background documents, explains why EPA developed the regulations and why they are written as they are. In so doing, EPA addresses (1) the Congressional authority for regulations, (2) the need for the regulation based on common sense as well as threats to human health and the environment, (3) precedents set by State regulations, and perhaps more importantly, (4) the many public comments on the proposed version of these regulations which were published in the Federal Register on December 18, 1978 and the Interim Status regulations promulgated on May 19, 1980.

This background document discusses only the non-technical aspects of closure and post-closure for the Interim Status Standards (Part 265) and the General Status Standards (Part 264). All treatment, storage, and disposal facilities managing hazardous wastes which are subject to the provisions of Part 264 or Part 265 must comply with the closure regulations. Only disposal facilities (i.e., facilities in which wastes will remain after closure) must comply with the post-closure regulations. The closure and post-closure technical requirements are provided for tanks in 265.197 and 264.197 for Interim Status and General Status respectively, for surface impoundments in 265.228 and 264.228, for land treatment in 265.280 and 264.280, for landfills in 265.310 and 264.310, for incinerators in 265.351 and 264.351, for thermal treatment in 265.381 and 264.381, 264.381, and for other types of treatment facilities in 265.404 and 264.404.

The remainder of this document is divided into five chapters. Chapter 2 presents the rationale for the regulation, addressing the Agency's authority, the need for the regulation, and precedents for it. The remaining four chapters provide analyses of the public comments received on the various regulations and the rationale and documentation for the Interim Status and General Status Standards.

The Agency received many public comments on the proposed version of these regulations published on December 18, 1978. Chapter 3 provides an analysis of these public comments, and EPA's responses to these comments. The Agency promulgated the Interim Status Standards for closure and post-closure (Section 265, Subpart G) on May 19, 1980. These regulations included both final Interim Status Standards and interim final Interim Status Standards.

Since the interim final portions of the regulations were substantially different for the proposed regulations, the Agency invited the public to comment on these sections. Chapter 4 presents the comments EPA received on the interim final sections of the regulation, an analysis of these public comments, and the rationale for the final Interim Status Standards.

Chapter 5 discusses the rationale for the General Status Standards which are applicable to those owners or operators of facilities who have not complied with the requirements for interim status. (See §264.3 and §265.1) The closure and post-closure General Status Standards are similar to the final Interim Status Standards but include the approval of the plans as part of the permitting process and was based, in part, on the public comments received on previous versions of the regulations.

The final chapter, Chapter 6, provides a list of references for the entire document.

Key Definitions

The following terms are pertinent to this regulation:

> "Closed Portion" means that portion of a facility which an owner or operator has closed in accordance with the facility closure plan and all applicable closure requirements.

This definition is the same as in the proposed regulation.

> "Close Out" means the time at which facility owners or operators discontinue operation by ceasing to accept hazardous waste treatment, storage, or disposal.

This term is no longer used in the regulations. Many readers confused this term with "closure" and "post-closure." However, since it appeared in the proposed regulations, it was used in the comments and is thus used in this document.

> "Partial Closure" means the closure of a discrete part of a facility in accordance with the applicable closure requirements of 40 CFR Parts 264, 265, or 266. For example, partial closure may include the closure of a trench, a unit operation, a landfill cell, or a pit, while other portions of the same facility continue in operation or will be placed in operation in the future.

This is a new definition. Several commenters stated that a definition for partial closure was needed. The Agency proposed a definition of "partial closure procedures" but it did not adequately address the meaning of partial closure. It has been deleted from the final regulation. An example of the difference between closure and partial closure would be the case of a secure landfill site where the owner or operator uses the trench method of disposal. The owner or operator may be disposing of waste in several trenches concurrently and may close individual trenches completely satisfying the closure requirements in Subpart G and the technical closure requirements for landfills. However, even though portions of the site are closed, the site is considered to be partially closed until such time as no waste is accepted at the site and the entire site has satisfied Subpart G and the technical landfill closure requirements. The 30 year post-closure care period does not begin to run for any part of a facility until it is completely closed.

The concept of partial closure is important because the closure plan (and thus the closure cost estimate and the amount of financial assurance necessary) is based on closing the facility at its maximum extent of operation. As a result, an owner or operator may minimize the amount of financial assurance he needs by partially closing as he completes an area or trench.

The following definitions have been removed from the regulations since they were originally proposed in December, 1978: closure, closure procedures, and post-closure care. The Agency has concluded that these definitions added nothing to the meanings of the terms which are obvious from their use in the regulations.

II. RATIONALE FOR REGULATION

A. EPA Authority

The first sentence of Section 3004 authorizes EPA to issue treatment, storage, or disposal standards "as may be necessary to protect human health and the environment." These standards must include, but need not be limited to, requirements respecting monitoring and maintenance of operation (§3004(2),(6). Section 2002(a)(1) authorizes EPA to promulgate "such regulations as are necessary" to carry out its functions under the Act.

As discussed below, and as is shown in the case studies outlined in this document, there is a significant risk that disposal facilities could harm human health or the environment after they have ceased operation, even many years after closure. There is also a significant risk that treatment and storage facilities could cause harm if they are not closed properly. EPA therefore feels that closure and post-closure standards are essential to assure that such facilities do not harm human health and the environment. The closure and post-closure standards which EPA has adopted are accordingly authorized by §§2002(a)(1), 3004 (first sentence), 3004(2) and 3004(6).

Moreover, the Act defines "disposal" (§1004(3)) to include the placing of hazardous waste into land so that the waste "may enter the environment." Because waste may enter the environment (e.g., by air emissions or leaching to waters) from a disposal facility even after the facility has been closed, any "disposal" standard mandated under §3004 must logically govern the time after a disposal facility is closed.

The House Report accompanying the Act states:

> The overriding concern of the Committee, however, is the effect on the population and the environment of the disposal of discarded

> hazardous wastes -- those which by virtue of their composition or *longevity* are harmful, toxic or lethal. Unless neutralized or properly managed in their disposal, hazardous wastes present a clear danger to the health and safety of the population and to the quality of the environment. (HR. Rept. 94-1491, 94th Cong., 2nd Sess., 1976, p. 3, emphasis added.)

In light of this strong expression of Congressional concern, particularly in relation to the length of time disposed wastes may be dangerous, EPA feels it should issue regulations which provide adequate closure and post-closure protection.

B. Basis for Regulation and Damage Cases

EPA believes that closure is extremely important in protecting the public and the environment from contamination by hazardous substances. Even when wastes are disposed of in a manner which appears proper at the time of disposal, failure to close a site properly *in and of itself* can cause harm. Proper final cover, for example, controls and greatly minimizes leaching by reducing the infiltration of liquids. For treatment and storage facilities one aspect of proper closure requires that all hazardous waste must be removed at closure, which also minimizes the threat of contamination from these facilities.

In the past, proper closure and post-closure care has not usually been carried out, creating at least in part, the human health and environmental impacts discussed later. Most often, the failure to close properly has been the result of poor planning, both financial and technical. Facilities are frequently designed and operated in ways which make adequate closure difficult. Waste inventories (waste awaiting processing or disposal) are often built to very large levels inconsistent with the owner's or operator's ability to manage them at closure. Such wastes often sit in corroding drums. Storage facilities are often designed to make waste removal difficult and costly. Closure and post-closure care are not cheap. Unless funds are set aside, many firms have been unable to fund adequate closure once revenue receipts stop. This problem is compounded in the facilities which go bankrupt or are otherwise abandoned before scheduled closure.

The solution to these problems involves careful planning from the outset of design and operation of the facility. The financial requirements of closure and post-closure care must be planned for ahead of time, when revenues are being received. The financial requirements are being reproposed but will be covered in Subpart H. The amount of financial assurance required will be based on estimates of closure and post-closure costs, which in turn, must be based on a detailed closure plan which lays out how and when the facility will be closed and what post-closure activities will be conducted. This planning should also prevent many of the design and operating mistakes which lead to difficulties accomplishing adequate closure. The Subpart G regulations and this background document cover the general requirements of closure and post-closure care, including the very important planning aspect. The technical requirements are covered in the regulatory subparts dealing with specific technologies (landfills, surface impoundments, etc.). And, as previously mentioned, the financial requirements will be covered in Subpart H.

The Agency has documented a number of examples of damage caused by the improper closure and post-closure care of hazardous waste treament, storage, and disposal facilities. These damage incidents illustrate how human health and the environment may be affected by inadequate closure and post-closure care of hazardous waste treatment, storage, and disposal facilities. In these cases, damage might have been avoided or minimized if the owner or operator had followed proper closure and post-closure care and maintenance procedures.

Damage incidents will almost certainly continue to occur unlesss closure and post-closure regulations are implemented. The Agency believes that regulations requiring planning are necessary. The following are summaries of some of the more graphic cases.

- Beginning in the 1920's, a major chemical producer buried chemicals of unknown kind and quantity in a landfill in Niagara Falls, New York. In 1953, the site owner covered the site with earth and sold it to the Niagara Falls Board of Education. They, in turn, sold a portion of the site to a private developer. In the late 1950's, homes were built directly adjacent to the former landfill site. State officials speculate that a portion of the landfill cover was removed during the 1950's and that removal of the cover could have contributed to the flow of leachate from the landfill. In August of 1978, the city of Niagara Falls declared a medical emergency after chemicals began infiltrating many homes near the former landfill. Chemical analyses showed that many of these chemicals were known or suspected carcinogens, and observers and residents noticed a high rate of birth defects, miscarriages and other adverse health effects. The State of New York subsequently ordered the evacuation of approximately 280 families in the area and promised to buy the homes of these residents at the fair market values. The cost of this program and of the remedial cleanup efforts may exceed $32 million. Damage claims totaling $2.5 billion have been filed in the case.[1] This case points out the need for regulations to ensure that the integrity of a facility will be maintained after its closure, and to ensure that subsequent purchasers are informed that the land was used as a hazardous waste disposal facility. It also demonstrates the need for records showing the type and location of the waste disposed of at the facility. Further, if appropriate monitoring had been conducted after closure, it is likely that contamination would have been detected before the massive human health impacts actually occurred.

- In June 1973, a major chemical company in Virginia contracted with a processing firm in Alabama to pick up, haul, and dispose of its waste. The processing firm transported approximately 10,000 drums of waste to Alabama where it was stored in two open storage areas and in an enclosed warehouse.

Unknown to the generator of the waste, the processing firm did not own a treatment facility and was merely stockpiling waste in anticipation of construction of a waste disposal facility. In October 1973, the processing firm contacted Alabama regulatory officials about plans to construct and operate a hazardous waste management facility. State officials requested that the firm submit engineering plans for the proposed facility.

In April 1974, State regulatory officials noticed pollution problems at and around the two open storage areas. As a result of wathering, physical stress, and the corrosive nature of the waste, many of the drums in the open areas had disintegrated, and their contents were strewn over the ground. State officials restricted additional stockpiling of waste at the site. In April 1975, the processing firm submitted an engineering plan to State officials. State officials rejected the plan as inadequate and ordered the processing firm to submit new plans and post a $250,000 performance bond, both in accordance with an implementation schedule, or face legal action by the Alabama Attorney General. The processing firm failed to meet the deadlines of the implementation schedule, and was financially unable to post the performance bond.

In February 1976, the waste generator in Virginia became aware of the problem in Alabama, and in April 1976, offered to pay for all costs of repacking, removing, and disposing of the waste in an environmentally acceptable manner. The wastes were removed from the site and disposed of at a cost of $650,000.[2]

This case points out the need for proper operating and closure planning before any wastes are actually received. It also points out the need for proper inventory control to be certain that all the wastes can adequately be disposed at any time should the need arise.

- Between 1917 and 1972, several creosote producing firms discharged creosote wastes into a lagoon in St. Louis Park, Minnesota. In 1972, the firms ceased operation after the Minnesota Pollution Control Agency filed complaints against them. The city of St. Louis Park, unaware of the pollution problems at the site, purchased the land from the firms, and signed an agreement freeing them from responsibility for any site cleanup. Contamination of water supplies for the city of St. Louis Park has been traced to the former creosote waste lagoon. Estimates of cleanup vary from $20 to $200 million.[3]

This case points out the need for regulations that will require that future property owners be notified that hazardous waste is stored on or in the land, and that monitoring of ground water be continued and the results reported for 30 years after closure.

- A landfill in Hyde Park, New York, used for the disposal of waste from pesticide and organic chemical manufacturing, closed in 1975 after over 20 years of operation. Pollution problems include contamination of ground and surface waters and contamination of soils and sediments around the site and in the surface drainage system to the Niagara River. According to the New York Department of Environmental Conservation, rupture of a protective berm at the facility, malfunction of the leachate collection system and the transport of pollutants from the site via the surface drainage system during the post-closure period aggravated these problems. Cleanup cost for the site may exceed $57 million.[4]

  This case points out the need for regulations which will require adequate closure and post-closure procedures in order to prevent environmental damage from an inactive site. Specifically, it shows the need for maintaining a site following closure.

- In Lowell, Massachusetts, a chemical waste facility operated from 1971 to 1978. The corporation owning the facility declared bankruptcy in 1978 leaving an on-site inventory of 30,000 drums of chemical waste in storage. Waste seepage from deteriorating drums has contaminated soil at and around the facility and has threatened ground-water supplies. Run-off of waste via surface drainage has contaminated adjacent properties and has threatened surface waters in the area. Air quality on and near the site has deteriorated to the point that visitors must use organic vapor respirators due to the presence of volatile substances. Also, fire and explosions threaten public health and welfare.

  The State of Massachusetts and EPA are currently involved in cleaning up the facility. This case illustrates the need for adequate closure plans which help ensure that all waste will be removed from a storage facility at closure.[5]

- Since 1867, asbestos product manufacturers have accumulated nearly 2 million cubic yards of assorted industrial wastes in open piles in a small Pennsylvania town. The original generator of the wastes went out of business in 1962. Since then, two other companies have enlarged the spils piles. Because of wind erosion, the atomosphere around the piles contained asbestos fibers. An air monitoring program EPA conducted in October 1973 indicated ambient background levels of asbestos to be 6 ng/m^3. State officials found an asbestos level of 9.6 ng/m^3 at a playground near the largest waste pile. Values obtained near active disposal piles ranged from 114 to 1745 ng/m^3. A high pH level in a nearby stream has resulted from runoff from the piles.[6]

  This case points out the need for regulations which will ensure proprer closure by facility owners or operators. Specifically, it shows why closure plans for storage facilities must show how the owners or operators intent to dispose of the waste at closure.

C. State Precedents

A number of States regulate the closure and post-closure activities of facilities in their jurisdiction in order to protect public health and the environment. Many of these States require closure plans. In developing its regulations, EPA utilized a number of the State's ideas and regulatory approaches. The following are summaries of the closure and post-closure regulations of several States:

- Wisconsin requires all facility owners or operators to submit an operation plan for a proposed facility. This plan must include details on development, operation and final closure. Long-term care provisions are an intregal component of the plan. Long-term care may include routine maintenance, monitoring of ground water, collection and disposal of gas and leachate, and erosion control. Site owners are required to care for a site for 30 years after the site stops accepting waste for disposal, although the owner may opt for a 20-year period of responsibility in exchange for paying higher fees to a State Waste Management Fund. A site owner may apply to the Wisconsin Department of Natural Resources (DNR) to terminate long-term care responsibilities 10 years after a site has stopped accepting waste. If DNR denies the application, the owner or operator may renew the request at 5-year intervals. After the owner's responsibility for long-term care terminates, the State Waste Management Fund is used to pay the cost of any additional long-term care required.[7]

- Minnesota requires facility owners or operators to submit a closure plan before closure. The hazardous waste regulations specify owner's or operator's duties and responsibilities during closure and post-closure periods (i.e., maintain liner and cover, control surface drainage, maintain ground-water monitoring system, etc.). Facility owners or operators must provide long-term care for as long as hazardous waste within a site poses a threat to the environment, unless the State of Minnesota or the United States agrees to assume responsibility for long-term maintenance, monitoring and surveillance.[8]

- Kansas requires facility owners or operators to submit a closure and post-closure plan. The hazardous waste regulations specify owner or operator closure and post-clsorue duties and responsibilities. Owners or operators are responsible for long-term care of a site for ten years after closure. The State may, however, extend the care period as necessary to protect the public health and safety of the environment. A 1979 amendment set up a State-wide fund that would pay for additional care and/or monitoring at a site after the owner's or operator's responsibility has ended or for costs of repairing a site or repairing environmental damage caused by a site as a result of a post-closure occurrence not anticipated in the plan of operation.[9]

- Oregon requires facility owners to deed disposal sites over to the State upon completion of disposal operations. In addition, the owner is required to carry a cash bond in the name of the State which will cover closure and post-closure monitoring and maintenance costs.[10]

III. ANALYSIS OF CLOSURE AND POST-CLOSURE COMMENTS, AND REGULATORY SYNOPSES AND RATIONALE

This section of the background document synopsizes the closure and post-closure regulation, by subsection, as proposed on December 18, 1978, together with the rationale for each subsection. The public comments for each subsection are then presented. Next, analysis of and response to these comments is provided along with the rationale for the interim status regulations. Finally, this document presents a synopsis and the text of each subsection of the interim status regulation.

Before this section-by-section discussion, however, it is necessary to address the general question of whether closure and post-closure regulations should apply to on-site facilities. A general comment received on these regulations said that closure and post-closure rules should apply, and indeed Congress meant them to apply, only to facilities which offer hazardous waste treatment, storage or disposal services to others ("off-site" facilities).

Common sense, however, dictates that closure and post-closure standards should apply to on-site, as well as off-site, facilities. At present, approximately 80 percent of all hazardous waste is disposed of on-site, and there is no reason to assume that post-closure damage from on-site facilities cannot represent just as grave a risk as damage from off-site facilities.[11] Thus, if EPA is to protect human health and the environment under this Act, it must regulate the closure and post-closure of on-site facilities as well as off-site facilities. Furthermore, the Agency finds no language in the Act or in the legislative history to serve as a basis for a distinction between on-site and off-site facilities.

CLOSURE PERFORMANCE STANDARDS

Synopsis of Proposed Regulation and Rationale

As proposed, the regulation, §250.43-7(i) required that after closure all facilities be secured to prevent human and animal life from contacting the waste. It further banned discharges harmful to the environment or human health.

EPA felt that these provisions provided a broad operational definition of closure.

Comments, Analysis, and Response

Several commenters stated that the requirement was too broad. Insects, moles, and worms are animal life, and it would be virtually impossible to keep them from contact with hazardous waste. Some of these commenters suggested EPA delete the requirement; others suggested that it only proscribe humans from contact with hazardous waste; and others suggested that it proscribe contact for only higher forms of animal life as well as humans.

Another commenter said that neither this section nor any other section adequately described the objective of closure. It suggested that this subsection be deleted and that the subsection on closure plans be rewritten to state objectives in terms of performance.

The Agency has concluded that this entire paragraph was overly broad, vague, and redundant. The Agency has adopted specific requirements in this section and in the technical sections (landfill, tanks, etc.) to ensure what this paragraph broadly required. Thus, the Agency deleted this paragraph, and wrote a new, more descriptive paragraph on closure objectives (§265.111).

Other commenters stated that this paragraph should apply only to disposal sites, where waste remains following closure. EPA deleted the paragraph and thus the comment is no longer relevent. The comment illustrates, however, a common misunderstanding of the proposed regulations. Many commenters did not understand that post-closure requirements pertained only to disposal facilities, while closure requirements pertain to all facilities. The final regulations make this point explicitly.

One comment on the definition of "active portion" stated that people disposing of utility wastes in strip mines should meet the Office of Surface Mining closure regulations instead of the RCRA requirements. EPA has deferred regulation of the disposal of coal mining wastes, if hazardous, to the Office of Surface Mining. However, the disposal of other hazardous mining wastes or of other hazardous wastes (non-mining) in strip mines has not been deferred. Thus, these wastes, unless exempted elsewhere in the Part 260 or 261 regulations, are subject to the full RCRA requirements, including those for closure and post-closure. The Office of Surface Mining regulations were written to address coal mining wastes. The Agency has no justification to defer regulation of other hazardous wastes to regulations written specifically for coal mining wastes. The deferral of hazardous coal mining waste is temporary, pending agreement between EPA and the Office of Surface Mining, that OSM's regulations provide equivalent control to the RCRA program and thus the RCRA mandate is met.

Synopsis of §265.111 of the Interim Status Regulations

The performance standard requires that the facility be closed so that the potential for the facility to pollute the environment or threaten human health is controlled, minimized, or eliminated. This is the primary purpose for adequately closing a facility. Secondarily, it requires that it be closed in such a way as to minimize the need for future maintenance, e.g., from erosion.

Text of §265.111 of the Interim Status Regulation

§265.111 Closure performance standard

The owner or operator must close his facility in a manner that: (1) minimizes the need for further maintenance and (2) controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground water, or surface waters, or to the atmosphere.

CLOSURE AND POST-CLOSURE PLANS

Synopsis of Proposed Regulation and Rationale

The proposed regulation, §250.43-7(c), required owners or operators of treatment, storage, and disposal facilities to submit closure plans to EPA. The plans were to state (1) how the facility would be closed, (2) a description of possible uses of the land after closure, and (3) anticipated site life and schedules for final closure, and partial closures.

EPA believes that closure is extremely important in protecting the public and the environment from contamination by hazardous substances. As previously discussed, the Agency believes that advance planning is necessary to ensure that adequate preparations and resources are on hand to accomplish closure properly. Therefore, the preparation of closure and post-closure plans is required.

Comments, Analysis, and Response

One concern was that complying with the proposed regulation required a crystal ball, since waste streams, technology, and site operation would surely change during the life of a site, and these changes would affect closure requirements. One commenter suggested that EPA should allow for amendments to closure plans to account for the possibility of change. Another suggested EPA should require from owners or operators semi-annual updates and comparisons of estimates to actual use.

EPA agrees that the proposed regulation required precognition far exceeding that usually demanded of a regulated community. Facilities will probably change the wastes they accept, adding some and dropping others. (Adding wastes will require modifications of the permit.) Methods of operations might also change, as will technologies. Such changes will require changes in the closure plan, and the final regulations allow for revisions of the closure plan. EPA, however, does not agree that a facility should conduct semi-annual updates or comparisons of actual to projected facility usage. The Agency sees no benefit from requiring amendments at set intervals. The plan should be amended whenever operating conditions or long-term plans change.

Another general area of comment concerned the applicability of the regulations. One commenter stated that closure plans should be necessary only for facilities where hazardous waste remains after closure. Another commenter said that EPA should distinguish between the operation of a processing facility and a permanent landfill.

EPA believes that closure plans must apply to treatment and storage facilities, as well as disposal facilities. Both the Lowell, Massachusetts, damage case[5] and common sense show that proper closure for a treatment or storage facility is just as necessary as it is for a disposal facility. If treatment and storage facilities, during closure, do not properly dispose of on-hand waste inventories and residues and decontaminate equipment, they can clearly endanger public health and the environment.[5] An EPA approved closure plan will increase the probability of an adequate closure.

On the question of the applicability of the proposed regulations, EPA intended that while closure plans should apply to treatment and storage facilities as well as to disposal facilities, post-closure requirements should apply only to disposal facilities. The language of the final regulations makes this clear. If hazardous waste is removed during closure, as is required for treatment and storage facilities, there is no reason to submit post-closure plans for these facilities or to monitor and maintain them. By definition, since no hazardous waste remains and the area is decontaminated during closure, there is no potential for post-closure difficulties.

A third area of comment said that the closure requirement does not adequately state the objective of the closure requirements. The commenter provided specific language to describe the objective.

On reviewing the proposed regulation, EPA agrees that the objective of closure is not adequately addressed. The final regulations borrowed much suggested language from this comment, and revised §265.111 now furnishes an operational definition of closure. Basically, the objective is to cause facilities to close so as to control, minimize, or eliminate the escape of pollutants to the extent necessary to protect human health and the environment as well as to minimize the need for maintenance activities to ensure that waste is isolated.

Another comment was that the regulatory closure requirements should be used as a guide in reviewing permit applications, and that closure and post-closure requirements should be specified in facility permits. The Agency believes that the proposed regulations contained these provisions and will probably incorporate the same requirements in the general status regulations. Each site is responsible for developing and maintaining a closure plan, and disposal facilities must develop post-closure plans. It is intended that these will be evaluated by EPA on a site-by-site basis. When approved, the closure plans will likely then become part of the permit conditions. When closure is completed each facility must submit a certification by both a registered professional engineer and the owner or operator that the site was closed in accordance with the plan. There is a great deal of flexibility in this approach, in that the closure and post-closure plans are developed on a facility-specific basis.

Another commenter noted that closure and post-closure requirements should reflect segmented operations. EPA intended that the proposed regulation do so and has revised the regulations. The final regulation (§265.112(a)) states that a closure plan "must identify the maximum extent of the operation which will be unclosed during the life of the facility." Furthermore, the same section says a plan must include "a description of how and when the facility will be partially closed, if applicable. . . ."

A commenter noted that closure plans should be submitted to State closure authorities and local authorities, as well as to EPA. EPA sees no need to require that a closure plan be submitted to State closure authorities and local authorities. Any State that wishes to receive the closure plan may require this under State law. Similarily, local authorities who want to receive plans can require submission under local law. The Agency sees no reason to require that plans be sent to them. Furthermore, EPA is willing to provide the plans to any State or local authority who requests them.

Finally, one commenter suggested that the closure plan should include information on post-closure security for the facility. The Agency disagrees. The Agency intends for the technical closure requirements for surface impoundments, land treatment facilities, and landfills to ensure that no hazard would befall an unknowing intruder to a closed site, unless that intruder tried to dig through the cap--a possibility the Agency thinks remote. In fact, the Agency hopes that completed sites will be opened to the public for use as parks and other recreational uses.

Synopsis of §265.111 of the Interim Status Standards

In interim status, in accordance with §265.111, all facilities must be closed to (1) minimize further maintenance and (2) control, minimize, or eliminate the discharge of wastes, constituents, leachate, contaminated rainfall or waste decomposition products to the environment to the extent necessary to protect human health and the environment.

In interim status, owners or operators must develop closure plans. The plans must include (1) descriptions of how the facilities will meet technical closure requirements, (2) maximum waste inventories during site life, (3) an identification of steps for decontaminating equipment during closure, and (4) a schedule for closure showing the anticipated date of final closure and intervening milestones to allow tracking progress. In interim status, this closure plan must be developed, but need not be submitted to EPA until 180 days before the owner or operator anticipates beginning closure; then, within 90 days, EPA will either approve or modify the plan. It is anticipated that during general status, the closure plans will be submitted along with the Part B permit application. The Regional Administrator will approve or modify the plans, and the plan will be incorporated into the conditions of the permit.

The owner or operator may modify or amend his closure plan. He must modify his plan if changes in operating conditions or facility design would affect closure. In interim status, the owner or operator need only modify the plan; during general status it is anticipated that the owner or operator will submit each amended closure plan to the Regional Administrator for approval.

Post-closure requirements apply only to disposal facilities. Post-closure care consists of at least (1) monitoring and reporting, and (2) maintaining monitoring and waste containment systems.

In interim status the owner or operator of a disposal facility must develop a post-closure plan. The plan must include (1) monitoring activities and frequencies, and (2) maintenance activities and frequencies relating to the cap and final cover, or other containment systems, and, where applicable, to the monitoring equipment. In interim status, the owner or operator must develop this plan and maintain it on the premises, but he need not submit it to EPA until 180 days before he anticipates beginning closure. The Regional Administrator will approve or modify the plan within 90 days. During general status, the Agency intends to require that owners or operators submit this plan to the Regional Administrator along with Part B of the permit application. The Regional Administrator would then approve or modify the post-closure plan. Once approved, the plan would be incorporated into the permit conditions.

Owners or operators may amend post-closure plans. EPA requires amendments if changes in operating plans or facility designs would affect post-closure plans. During interim status amendments need not be submitted to EPA. During general status the Agency anticipates that the owner or operator will be required to submit each amendment to the Regional Administrator for approval.

Text of §265.112 of the Interim Status Regulations

§265.112 Closure plan; amendment of plan

(a) On the effective date of these regulations, the owner or operator must have a written closure plan. He must keep this plan at the facility. This plan must identify the steps necessary to completely close the facility at any point during its intended life and at the end of its intended life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and ultimately closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of §265.197, 265.228, 265.280, 265.310, 265.351, 265.381, and 265.404 will be met;

(2) An estimate of the maximum inventory of wastes in storage or in treatment at any given time during the life of the facility;

(3) A description of the steps needed to decontaminate facility equipment during closure; and

(4) A schedule for final closure which must include, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure. (For example, the expected date for competing treatment or disposal of waste inventory must be included, as must the planned date for removing any residual wastes from storage facilities land treatment processes.)

(b) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) The owner or operator must amend his plan any time changes in operating plans or facility design affect the closure plan.

(c) The owner or operator must submit his closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The Regional Administrator will modify, approve or disapprove the plan within 90 days of receipt and after providing the owner or operator and the affected public (through a newspaper notice) the opportunity to submit written comments. If an owner or operator plans to begin closure within 180 days after the effective date of these regulations, he must submit the necessary plans on the effective date of these regulations.

Test of §265.118 of the Interim Status Standards

§265.113 Post-closure plan; amendment of plan

(a) On the effective date of these regulations, the owner or operator of a disposal facility must have a written post-closure plan. He must keep this plan at the facility. This plan must identify the activities which will be carried on after final closure and the frequency of those activities. The post-closure plan must include at least:

(1) Ground-water monitoring activities and frequencies as specified in Subpart F for the post-closure period; and

(2) Maintenance activities and frequencies to ensure: (1) the integrity of the cap and final cover or other containment structures as specified in §§265.223, 265.228, 265.280, and 265.310, where applicabale, and (2) the function of the facility's monitoring equipment as specified in §265.91.

(b) The owner or operator may amend his post-closure plan at any time during the active life of the disposal facility or during the post-closure care period. The owner or operator must amend his plan any time changes in operating plans or facility design affect his post-closure plan.

(c) The owner or operator of a disposal facility must submit his post-closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The Regional Administrator must modify or approve the plan within 90 days of receipt and after providing the owner or operator and the affected public (through a newspaper notice) the opportunity to submit written comments. The plan may be modified to include security equipment maintenance under §265.117(b). If any owner or operator of a disposal facility plans to begin closure within 180 days after the effective date of these regulations, he must submit the necessary plans on the effective date of these regulations. Any amendments to the plan under paragraph (b) of this Section which occur after approval of the plan, must also be approved by the Regional Administrator before they may be implemented.

CLOSE-OUT REQUIREMENTS

Synopsis of Proposed Regulation and Rationale

According to the proposed regulation, §250.43-7(f), all hazardous waste was to be removed from storage and treatment and properly disposed of within 90 days after close-out. All disposal operations were also to be finished in that time. EPA required that wastes be removed and properly disposed of quickly, because it felt that after close-out, facilities are particularly susceptible to problems. Management tends to lose interest in a facility that no longer generates revenues, and may substantially reduce the staff. Having untreated or undisposed waste in an inactive facility presents an unnecessary hazard. Furthermore, closure cannot begin until the owner or operator removes the inventory, and the Agency wants closure to be completed and the site secured as soon as possible.

Comments, Analysis, and Response

One commenter said that after 30 days, waste should be contained to ensure environmental protection. Another commenter said that allowing 90 days after close-out for disposing of inventory and removing inventory allows inadequate time to remove and dispose of wastes from storage and treatment facilities.

EPA thinks that 90 days is adequate time. EPA feels that a well-run operation should have little trouble meeting this requirement, since an owner or operator should not wait until the facility receives the final volume of waste to locate disposal sites or to dispose of the waste inventory. Furthermore, EPA sees no reason why it should be necessary to keep waste inventories above a 90-day supply. If this is necessary, then the facility should plan to ceaase operations in a way that allows it to work off its inventory. Finally, the final regulations require the closure plan to include the estimate of the time that will be required to dispose of inventories. Owners or operators must dispose of inventories within this time, or be in violation ot their permit.

Synopsis of §265.113(a) of the Interim Status Regulations

The interim status regulation is the same as the proposed regulation, except that the words "close-out" have been replaced. EPA no longer uses these words in the regulations, since they confused many readers.

In the Interim Status Standards, an owner or operator must dispose of (on- or off-site) or treat all wastes in storage or in process within 90 days after the facility receives its final shipment of waste.

Text of §265.113(a) of the Interim Status Standards

§265.113 Time allowed for closure

> (a) Within 90 days after receiving the final volume of hazardous wastes, the owner or operator must treat all hazardous wastes in storage or in treatment, or remove them from the site, or dispose of them on-site, in accordance with the approved closure plan.

TIME ALLOWED FOR CLOSURE

Synopsis of Proposed Regulation and Rationale

The proposed regulation, §250.43-7(g), required that closure be completed within three years of close-out. EPA picked a three year maximum because it felt that any facility could be successfully closed in this time period.

Comments, Analysis and Response

Some commenters thought a three year period was too short, and other thought it was too long. Other commenters noted that the length of time necessary for closure will depend on the size and type of facility.

EPA concurs with this last view. It should certainly take longer to close a large surface impoundment where dewatering is part of the closure procedure than it will to close a small storage facility. While the proposed regulation permitted closure to take up to three years, in most cases it should take less time. The final regulation reflects this. In the final regulation closure must be completed within six months, unless the owner or operator can demonstrate that closure cannot be completed within this time span, and that the inactive but unclosed facility represents no threat to public health and the environment. If the owner or operator makes such a demonstration, the Regional Administrator may allow a longer period of time for closure. EPA feels the flexibility of this provision is a reasonable solution to the problem.

Another commenter stated that closure should be performed in accordance with the closure plan. EPA agrees. This was the intention of the proposed regulations. EPA requires closure plans, and considers them instrumental to an adequate closure. This requirement is explicit in the final regulations.

Finally, commenters said that if a site were abandoned before the end of the three year closure period, the Regional Administrator would be unable to reach the closure fund monies until the end of the three year period. These commenters suggested that EPA should specifically state that closure should be completed within the time specified in the approved closure plan. This was intended in the proposed regulation and is clarified in these regulations. At any point in the closure schedule that there is a default, the Regional Administrator could resort to the financial assurance instruments (trust fund, bond, etc.) to ensure closure. These requirements are being reproposed. The Regional Administrator could also bring suit to compel the owner or operator to perform. It is not necessary for the Agency to wait until the end of the allowable closure period to declare the owner or operator to be in default.

Synopsis of §265.113(b) of the Interim Status Regulations

In the interim status regulations, the owner or operator must follow the approved plan, and ordinarily close within six months of the final shipment of waste. The Regional Administrator may allow a longer closure period if the owner or operator can show that it will take longer than six months to close the facility and that the longer period poses no threat to human health or the environment.

Text of §265.113(b) of the Interim Status Regulations

§265.113 Time allowed for closure

> (b) The owner or operator must complete closure activities in accordance with the approved closure plan and within six months after receiving the final volume of wastes. The Regional Administrator may approve a longer closure period under §265.112(c) if the owner or operator can demonstrate that: (1) the required or planned closure activities will, of necessity, take him longer than six months to complete, and (2) that he has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive facility.

DISPOSAL OR DECONTAMINATION OF EQUIPMENT

Synopsis of the Proposed Regulation and Rationale

The proposed regulation, §250.43-7(h), required operating equipment to be decontaminated or disposed of as part of closure. This was required so that contaminated equipment would not be allowed to stand idle and accessible. EPA hazardous waste regulations require Section 3004 practices for Section 3001 wastes because they are potentially hazardous. It makes little sense to mandate treatment for the waste, and not remove the residues from the treatment and disposal equipment when they are no longer used.

Comments and Response

The commenter on this subsection stated that the regulation and the Preamble were inconsistent. The regulation said that equipment must be disposed of or decontaminated, while the Preamble said dismantled and decontaminated. EPA agrees that dismantling is expensive and unnecessary. The final Preamble is consistent with the regulations.

Synopsis of §265.114 of the Interim Status Regulations

The interim status regulations require that facility equipment be properly disposed of or decontaminated by removing hazardous wastes and residues during closure.

Text of §265.114 of the Interim Status Regulations

§265.114 Disposal or decontamination of equipment

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

CLOSE-OUT AND CLOSURE NOTIFICATION

Synopsis of Proposed Regulations and Rationale

The proposed regulations, §250.43-7(d) and (e), required facilities to notify EPA 15 days before partial closure or close-out. Owners or operators of facilities other than landfills were required to notify EPA of the expected date of completion of closure at least 90 days before it was completed and landfill operators 180 days before completion.

EPA required these notifications because of the extreme importance of closure to the safety of the site. For example, notifying EPA of closure would allow EPA to inspect landfills before they were covered with liners and clay, and thus enable the facility to rectify any improper or incomplete procedures.

Comments, Analysis and Response

Several commenters stated that EPA need not be notified before closure. EPA disagrees, because proper closure is extremely important to minimize future environmental problems; the Regional Administrator should be able to inspect the site before and during closure. If he is notified following closure, there is little he can do to assure proper closure. Furthermore, notification should precede closure so that EPA can expedite the release of the closure trust funds or other financial requirements.

EPA has concluded that it is not necessary to require, in the Interim Status Standards, that owners or operators notify EPA before they anticipate completing closure. Since the owner or operator must tender his closure plan for approval just prior to closing this facility (§265.112(c)), the receipt of the plan will provide adequate notice to the Agency during interim status.

One commenter said that disposers, treaters, and storers should be required to notify the generators they serve six months in advance of close-out, in order to give generators time to find alternatives. EPA does not agree that this should be required as a matter of Federal law. If generators need this lead time to find alternatives, they can include this lead time in the contracts they sign with hazardous waste facilities.

CLOSURE AND POST-CLOSURE CERTIFICATION

Synopsis of Proposed Regulation and Rationale

The proposed regulation, §250.43-7(k), required the owner or operator of a hazardous waste facility to submit certification by a registered professional engineer to the Regional Administrator that the site was closed in accordance with the closure regulations. For landfills and other facilities where hazardous waste is not removed during closure, EPA also required certificaion after the post-closure period.

EPA required that an engineer certify closure to help ensure that closure complied with the closure regulations. Closure and post-closure certification were to serve as the trigger mechanisms for the release of closure and post-closure trust funds. They were therefore instrumental in the financial requirements.

Comments, Analysis and Response

One commenter suggested that certification after post-closure was unnecessary. EPA agrees, and has deleted the requirement for post-closure certification. EPA feels that any advantage gained by requiring post-closure certification is overshadowed by the paperwork. Furthermore, since the post-closure regulations require monitoring and routine maintenance, EPA should know if a site is not properly closed at the end of the period, and could take whatever action might be appropriate.

Another commenter stated that the regulation should also require certification of closure in accordance with the closure plans. This was the intent of the proposed regulation; EPA has made this requirement explicit in the final regulations.

Another commenter said that certification should also be submitted to the State closure authority as well as to EPA. EPA sees no reason to compel this activity, since such States who wish to receive certification can require this under their own authority.

Finally, one commenter said that it is hard to determine the overall scope the professional certification would need to address. Since the time period for closure can be lengthy, and since the certifier would likely have little first-hand knowledge of previous operations, certification would require a long investigation by the engineer.

EPA does not agree with these conclusions. In the final regulation, the engineer must certify closure in accordance with the regulation and permit conditions. To do so, the engineer need not be present at the site for the entire closure period, nor must he be intimately familiar with prior operating practices. He must only inspect closure plans and procedures and be satisfied that the closure was performed according to these plans. This would require a final inspection, and might require several interim inspections during closure to make sure work is proceeding according to plan.

The Agency made one additional change to this section which requires that the registered professional engineer be independent of the owner or operator; that is to say that he not be in the direct employ (i.e., on the payroll) of the owner or operator or the owner or operator himself. The Agency realizes that some owners or operators have registered professional engineers on their staffs. And in cases where there is doubt, their objectivity may be unconsciously colored by their loyalty to their employer. Since the Agency is relying to a fair extent on this certification for assurance that closure has been conducted properly, it seems prudent to ensure his objectivity in so far as is practical. The Agency believes that this change will impact primarily the larger companies who are the ones most likely to have registered professional engineers on their staff. Smaller firms, in most cases, would have had to contract with a registered professional engineer in any case.

Synopsis of §265.115 of the Interim Status Standards

After closure, the owner or operator and an independent registered professional engineer must certify that the facility has been closed in accordance with the closure plan. The owner or operator must submit these certifications to the Regional Administrator.

Text of §265.115 of the Interim Status Standards

§265.115 Certification of closure

When closure is completed, the owner or operator must submit to the Regional Administrator certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

NOTIFICATION TO NEW OWNER OR OPERATOR

Synopsis of Proposed Regulation and Rationale

If a new owner or operator acquires a facility during the post-closure period, subsection §250.437(o) required the new owner or operator to comply with the closure and post-closure regulations. This provision prevented closure and post-closure requirements from being circumvented by property transfers. If closure and post-closure requirements could be circumvented by a property transfer, many closed sites would be transferred to avoid both the expense and work required by the regulation.

Text of §265.12(b) of the Interim Status Regulations

§265.12(b) Required notices

(b) Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure care period, the owner or operator must notify the new owner or operator in writing of the requirements of this Part and Part 122 of this Chapter. [Also see §122.23(c) of this Chapter.]

POST-CLOSURE CARE

Synopsis of Proposed Regulation and Rationale

The proposed regulation, §250.43-7(n), required post-closure care. This consisted of monitoring and reporting, and maintaining facility security and waste containment devices. The rationale for post-closure care is discussed in the previous two sections.

Comments, Analysis, and Response

Many commenters said that special wastes, as defined in the proposed regulations, should be exempt from post-closure requirements. These commenters claimed that the special wastes are inert, and that special wastes might be deemed non-hazardous pending further study. For reasons indicated in the Preamble discussion of "Special Wastes;" the "special wastes" category is being deleted from the final regulations. All wastes, if hazardous under Part 261 if land disposed, must be managed in accordance with these post-closure care requirements.

Another commenter said that this paragraph could be interpreted to require a watchman for 20 years as a part of post-closure security. A variation to this theme suggested that EPA's regulations should be more specific and require, for example, fences or guards in the post-closure period. A third comment on the post-closure security theme said that "potential use of the site would be severely restricted if all security devices must be maintained post-closure as per this subpart." The commenter suggested "allowing security devices to be discontinued after closure of the site if approved by the Regional Administrator for compatibility with future site usage."

EPA agrees that potential use of the site would be restricted if security had to be maintained following post-closure. As previously discussed, the specific technical closure requirements should adequately protect the public even where access is openly allowed. Thus, control of access is not normally needed after closure. Therefore, the Agency has modified the regulation to require security provisions only when the Regional Administrator determines that casual access by an uninformed public could subject them to a significant health risk or where the wastes remain exposed after closure.

Synopsis of §265.117(a)(b) of the Interim Status Regulation

During interim status, owners or operators must provide post-closure care. This care consists of (1) monitoring and reporting and (2) maintaining monitoring and waste containment systems. Maintenance of security systems is at the discretion of the Regional Administrator.

Text of §265.117(a)(b) of the Interim Status Regulation

§265.117 Post-closure care and use of property; period of care

(a) Post-closure care must consist of at least:

(1) Ground-water monitoring and reporting in accordance with the requirements of Subpart F; and

(2) Maintenance of monitoring and waste containment systems as specified in §§265.91, 265.223, 265.228, 265.280, and 265.310, where applicable.

(b) The Regional Administrator may require maintenance of any or all of the security requirements of §265.14 during the post-closure period, when:

(1) Wastes may remain exposed after completion of closure; or

(2) Short term, incidental access by the public or domestic livestock may pose a hazard to human health.

EQUIPMENT AND PROVISIONS FOR POST-CLOSURE GROUND-WATER MONITORING

Synopsis of Regulation and Rationale

This subsection, §250.43-7(j), required that monitoring equipment and arrangements for post-closure monitoring be available at the completion of closure. EPA originally felt this was necessary to ensure that monitoring could begin without delay.

Comments, Analysis, and Response

One commenter, who suggested that perpetual monitoring was necessary for facilities, suggested that this subsection be modified to reflect a perpetual monitoring period. This background document discusses the length of the post-closure period later. However, in considering this comment, the Agency has concluded that this paragraph is redundant.

In the proposed regulation, paragraph (n) requires post-closure monitoring. In the final interim status regulation, §265.117(a)(1) requires post-closure monitoring. The Agency does not feel it necessary to explicitly require equipment and arrangements, in an additional paragraph, as these requirements are clearly mandated in §265.117(a)(1). Further, facilities are required to conduct much of the same monitoring during site life as during post-closure. Thus the equipment will already be in place.

POST-CLOSURE PERIOD AND EFFECTIVENESS AND APPROACH TO POST-CLOSURE REGULATION

Synopsis of Proposed Regulation and Rationale

The proposed regulation, §250.43-7(m), required 20 years of post-closure monitoring and maintenance for landfills and all other facilities where hazardous waste remained after closure. A note (variance) to this paragraph permitted the Regional Administrator to shorten the time period if the owner or operator could demonstrate that the 20-year period was unnecesary.

The Agency selected a 20-year period for post-closure monitoring and maintenance for both practical and technical reasons. The choice of an appropriate post-closure care period is a decision which, of necessity, depends on the Agency's philosophy and strategy relative to control of ground-water pollution from land disposal facilities.

Initially, the Agency decided that the appropriate approach would be to set ambient limits on pollutants in the ground water. Then, modeling wastes movement through the soil could predict whether leaching from a landfill of given design containing specific wastes would exceed these limits. Design and permitting could then be based on these calculations. A study performed in 1976 and 1977 showed that the modeling, particularly of the unsaturated soil regime, was not sufficiently advanced to enable the EPA to use this approach.[12]

Since predicting pollutant migration was not yet practical, the Agency concluded that the next best control strategy would be to maximize containment, limiting the release rate of contaminants to negligible levels. In the proposed regulations, §250.45-2, the Agency developed several landfill design alternatives which it believed theoretically provided more than 100 years of containment before release to the soil regime of any contaminants. The Agency further believed that once contaminants did escape, the release rate to the ground water would be so low that dilution would be adequate to prevent buildup of measurable concentrations.[13]

Based on these theoretical designs, the Agency determined two needs or reasons for long-term monitoring:

(1) to determine the sufficiency of the designs, i.e., whether they in fact would prove as protective as the Agency believed, and

(2) to ensure that no construction or operating errors were made which could cause measurable release of pollutants. Examples of errors include tearing of liners or caps and disposing of wastes which are incompatible with the containment system.

To satisfy the first need, one would prefer monitoring ad infinitum or at least for more than 100 years. The second need could presumably be satisfied in a much shorter period.

As a practical matter monitoring and care could not be carried out for extended periods, particularly by the smaller private operations. Once revenues cease at closure, there is often no source of funds to discharge post-closure responsibilities. Many of these firms simply cease to exist. The Agency also found it economically impractical to require these facilities to put away sufficient funds during the operating life of the site so that interest on the principal would be sufficient to cover annual monitoring and maintenance expenses for extended periods after closure. Even to assure funds sufficient to cover post-closure responsibilities for 50 years requires accumulation of principals so large as to be impractical in the Agency's view. Thus, the Agency concluded that 20 years was about the maximum post-closure care period which could be ensured by the financial responsibility requirements. (See the background document on financial responsibility for a further discussion.)

The choice of 20 years as the post-closure monitoring period also satisfies the second need or reason for this monitoring. The proposed ground-water and leachate monitoring requirements (§250.43-8(b)) called for installing a leachate monitoring system as an early warning safeguard within the zone of aeration (unsaturated zone) directly under the landfill or surface impoundment. The Agency believed that if the containment system had been breached during operation or closure, then pollutants would have been detected in the leachate monitoring system well within the 20-year period. Thus, while not completely satisfying the Agency's desires for complete certainty, 20 years was proposed as the maximum practical post-closure monitoring period.

Comments, Analysis, and Response on the Length of the Post-Closure Care Period

The length of the post-closure period was the major issue eliciting comment in this section of the regulations. Many commenters thought the 20-year period was too short; others thought it was too long. Some thought that the period should be linked to the contents of the disposal facility, while others felt that the post-closure period should be linked to performance standards.

One group of commenters suggested that the post-closure period for disposal facilities should continue perpetually. They pointed out that some wastes, like heavy metals, are toxic forever, while others, like some organics, break down or detoxify very slowly, if at all. Since the contents of the disposal facility may be hazardous forever, these commenters argue that the site must be monitored and maintained forever. Most commenters of this persuasion thought the owner or operator of the facility should be the responsible party. One commenter, however, suggested that at the end of the 20-year period, a State authority could assume responsibility and liability for the site.

Another group of commenters, although not arguing for perpetual care, suggested that the 20-year period of post-closure care is too short. Again the argument was raised that many wastes are toxic for more than 20 years. One commenter in this group pointed out that "Dioxin with a supposed half life of one to two years was in the leachate from the Love Canal area." Another said that "evidence has shown that the greatest hazard occurs after the 20-year proposed limit. One supporting example occurred in Perham, Minnesota, when arsenic which had been buried for over 30 years leached into a nearby well. Several individuals who had consumed the contaminated water were hospitalized."

Some commenters indicated technical reasons why they believe containment systems will fail over time. One said, "even the best surface water diversion structures deteriorate with time. . .the same is true for leachate collection systems and liners." Another commenter said that "A recent report we have indicates that the synthetic liners have a maximum life of 25 to 30 years."

Other commenters advanced additional reasons for lengthening the post-closure period past 20 years. One commenter pointed out that lengthening the time period from 20 years should induce more technology changes in the containment and treatment areas. Another commenter pointed out that generators and operators will make sites secure only for the period of time during which they are responsible. That being the case, longer is better.

Another group of commenters argued that the 20-year period was adequate. They argued that if no problems occur in the 20-year post-closure period, "the site can reasonably be considered secure and in need of no future monitoring." Many of these commenters also felt that EPA should permit a shorter post-closure period, if the owner or operator could demonstrate continued post-closure care unnecessary. Others thought that 20 years should be the maximum period, and less time should be permitted if the owner or operator "can demonstrate that less time is sufficient and there is no pending danger to the public."

Finally, some commenters thought that the 20-year period was generally too long. One argued that the post-closure period could even result in less environmental protection since "lengthy post-closure work may simply force closure of many otherwise acceptable sites and thus defeat the intent of better hazardous waste management." Another said that "some types of waste are not subject to leakage and would not require a 20-year monitoring period after site closure." One commenter felt that the Agency should adopt a 10-year monitoring and maintenance period to be consistent with the Department of the Interior Office of Surface Mining's 10-year requirement for strip mines.

Several commenters thought the post-closure period should depend on a variable other than elapsed time. One argued that "if we must insist on burial then there is no alternative to the monitoring of the site for the lifetime of the longest lasting component." Another commenter phrased it slightly differently: "EPA should require the post-closure care specified in §250.43-7(n) for as long as the site contains hazardous materials." Another commenter thought that "The post-closure care period should be governed by performance criteria as well as minimum time standards."

As a result of the extensive comment, the Agency has reevaluated the post-closure care issue, and has decided to extend the post-closure period from 20 to 30 years. EPA believes that its decision to delete the proposed leachate monitoring requirements makes it necessary to monitor ground water for a longer period of time, and that further analysis of financial requirements, as well as proposed changes in these regulations, makes it practical to do so.

Public comment persuaded EPA (see background document on ground-water monitoring) that existing leachate monitoring techniques are impractical except at land treatment facilities. Thus, EPA has deleted the leachate monitoring requirements for landfills and surface impoundments. EPA had believed that leachate monitoring systems would act as early warning systems. Since it will take longer for contamination migration to reach ground-water monitoring points than it would have taken to reach leachate detection monitoring points, it is necessary to monitor for a longer period.

EPA is now convinced that it is economically practical to monitor and maintain closed disposal facilities for 30 years. Because EPA no longer requires leachate and air monitoring, owners or operators need not provide the money for these activities. In the proposed regulation, leachate monitoring represented 14 percent and air monitoring 57 percent of the cost of post-closure monitoring.[17] Furthermore, proposed changes in the financial regulations will make all financial requirements less costly. In the proposed regulations, EPA required owners or operators of disposal facilities to establish trust funds for both closure and post-closure. The Agency is now proposing that owners or operators satisfy closure and post-closure responsibilities through one of a number of very slow.[17] Similarly, heavy metals remain toxic forever, and may be mobilized unless carefully managed. Because of the extreme persistence of some waste, EPA is considering asking Congress for some type of national insurance, funded by waste disposers, that would pay for routine monitoring and maintenance past the time required by EPA. The fund could also cover these activities in the case of default by the owner or operator, and could be designed to cover remedial activity where the owner or operator is not solvent. Given the authority under RCRA, EPA believes its regulations provide the maximum practical protection for the public while allowing flexibility to either shorten or lengthen the post-closure period for cause.

Comments, Analysis, and Response on the Effectiveness and Approach to Post-Closure Regulations

In addition to the specific comments on the length of the post-closure period, there were a number of other miscellaneous comments dealing with the concept and approach to the proposed post-closure regulations.

Several commenters were afraid that the proposed regulations limited "post-closure responsibility to an arbitrary time period of 20 years and could result in transfer of unsolved problems to regulatory agencies." Although EPA does not agree that the proposed regulations would allow this "transfer of unsolved problems," the final regulations certainly will not. If there is an unsolved problem at the end of the post-closure period, the final regulations will allow the Regional Administrator to lengthen the time period.

Many commenters also felt that "reliance on the concept of post-closure maintenance conflicts with the function of closure, i.e., to achieve a permanently secure facility. . .facilities necessitating post-closure maintenance should not be authorized." EPA believes that the post-closure monitoring and maintenance period is necessary for two reasons. First, for sites which have been properly operated and closed, post-closure maintenance is necessary to assure that the site stays properly closed. If the original vegetation dies five years after closure, it must be replanted or the likelihood of erosion, possibly leading to increased water infiltration, increases. It is also possible that an unusually severe storm could cause erosion problems even for a site that was properly closed. To maintain the integrity of the landfills, regrading may be necessary if erosion occurs. Second, the post-closure requirements provide insurance. Mistakes and accidents do happen. In the event that a site has a defect, the Agency expects that the problem would become apparent in the post-closure care period. It would be irresponsible of EPA to count on proper operation and closure and not require a post-closure period. This period provides needed insurance against mistakes in facility design and construction as well as mistakes in these regulations.

Another commenter requested clarification on closure, asking, "Where one portion of the facility may be closed long before others, when does 'closure' per se occur?" The Agency thinks that the proposed regulation was ambiguous. In the final regulation, EPA has operationally defined the end of closure to be the point at which the owner or operator submits the registered engineer's closure certification for the entire facility. This certification marks the beginning of the post-closure period.

Several other commenters suggested differing solutions to the problems of long-term hazard of disposed wastes. One such commenter said that "certain types of hazardous wastes simply cannot be disposed of in landfills" because of the long-term threat they pose. Another said that "landfilling of chemical wastes with perpetual care programs represents only an interim solution to the problem of chemical waste management" and suggested that "well funded and innovative programs. . .must be implemented to assure deployment of proper waste destruction facilities, capable of eliminating the specter of repeated Love Canal disasters in the future."

The Agency agrees, in principle, that some wastes should be prescribed from landfills. EPA is making an effort to limit the wastes which are placed in landfills. At present, EPA bans ignitables, reactives, and liquids from landfills on the grounds that under normal conditions they cannot be suitably managed. (Readers should see the background document on landfills for further discussion.)

On the issue of funding of destruction facilities, EPA believes that the private sector is fully capable of establishing these programs. The Agency does support, however, development work in these areas through its Office of Research and Development.

One commenter stated that protection under these regulations, is contingent on the existence of a financially viable owner or operator during the post-closure period. EPA agrees that this comment is a fair characterization of both the proposed and final regulations. The Agency intends to remedy this situation by requesting from Congress legislation that will provide for remedial action in the event that an owner or operator is not financially viable. The Agency is considering extending this request to provide for closure and post-closure monitoring and maintenance in the event an owner dissolves, declares bankruptcy or is otherwise not available to comply (under law) with the regulations. The issue of ensuring funding for closure and post-closure requirements is discussed in detail in the background document on financial requirements.

Another commenter questioned the legality of requiring future owners of property upon which a storage facility has been located to commit themselves to preserving the integrity of the facility for an unspecified number of years. This commenter also said that inserting such a clause into the land records appears to be a matter of local concern and jurisdiction and not a matter for Federal concern. The first part of the comment reflects the general confusion over the applicability of closure and post-closure requirements. Closure requirements apply to all facilities, while post-closure requirements apply to only disposal facilities. Second, although solid waste has traditionally been a State and local problem, Congress has deemed it neessary to create a major Federal regulatory program to protect health and the environment from hazardous waste. Because EPA has found that a notice in the land records will materially assist in protecting the integrity of hazardous waste containment systems, a notice requirement is properly a matter of Federal concern. Also, these final regulations allow disturbance of site integrity for cause, with the Agency's approval.

Another commenter argued similarly that EPA lacks authority to "hinder transfer of land" through closure and post-closure rquirements. These regulations do not seek to place impediments on the right to transfer ownership. Rather, they seek to assure that a person who purchases or leases land on which hazardous wastes are being or have been disposed will have full knowledge of this fact and will be aware of the attendant legal requirements. This will prevent him from unknowingly disturbing a site with, perhaps, tragic consequences. While the purchaser's use of the land might be restricted in some respect, such restrictions are fully authorized by the Act. Nothing in the Act or the legislative history indicates that Congress intended to remove controls from hazardous waste disposal sites whenever ownership of a site changed hands.

As discussed earlier, §§2002(a)(1) and 3004 (first sentence) authorize EPA to issue such standards as may be necessary to protect human health and the environment. From the standpoint of hazards, the identity of the landowner is irrelevant. It is evident, therefore, that rules governing hazardous waste disposal sites must apply regardless of who owns the land. It is also evident that persons buying land on which hazardous wastes have been disposed must be made aware of this fact. Otherwise, a new owner might innocently engage in activities (such as drilling, excavating, etc.) which could have disastrous consequences to human health and the environment.

Another commenter argued that the regulations are unfair. An owner or operator could run the site properly, close it properly and follow post-closure regulations and still be responsible for problems on the site. The commenter said that responsibility should end after five years if everything has been done right. Risk, however, is an ordinary part of any business operation. This is especially the case for hazardous waste disposal sites. A person engaging in this business should realize that he may be held strictly liable for the harm which may be caused by his operations, regardless of whether he was willful or negligent. This "strict liability" for hazardous activities has long been recognized in the law and is not being newly created by these regulations. It should be pointed out, however, that the Agency's policy is not to penalize facilities which have acted responsibly and in accord with these regulations by imposing punitive measures (fines, etc.) where problems have arisen which could not have been predicted.

Synopsis of §265.117(d) of the Interim Status Regulations

The interim status regulations require owners or operators of disposal facilities to provide 30 years of post-closure care. The owner or operator may request the Regional Administrator to shorten the time period, or modify the requirements for cause. The Regional Administrator can also, for cause, require that all or part of post-closure care requirements be continued for a specified time period past 30 years. An owner or operator or the public may request an extension or reduction of the post-closure care period, not more often than once every five years. This last provision has been added to limit the frequency and thus the proliferation of similar petitions. An early decision to reduce the period, where cause can be shown, would reduce the economic impact of the financial regulations.

Text of §265.117(d) of the Interim Status Standards

§265.117 Post-closure care and use of property; period of care

(d) The owner or operator of a disposal facility must provide post-closure care in accordance with the approved post-closure care plan for at least 30 years after the date of completing closure. However, the owner or operator may petition the Regional Administrator to allow some or all of the requirements for post-closure care to be discontinued or altered before the end of the 30-year period. The petition must include evidence demonstrating the secure nature of the facility that makes continuing the specified post-closure requirement(s) unnecessary--e.g., no detected leaks and none likely to occur, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or reuse techniques. Alternately, the Regional Administrator may require the owner or operator to continue one or more of the post-closure care and maintenance requirements contained in the facility's post-closure plan for a specified period of time. The Regional Administrator may do this if he finds there has been noncompliance

> with any applicable standards or requirements, or that such continuation is necessary to protect human health or the environment. At the end of the specified period of time, the Regional Administrator will determine whether to continue or terminate post-closure care and maintenance at the facility. Anyone (a member of the public as well as the owner or operator) may petition the Regional Administrator for an extension or reduction of the post-closure care period based on cause. These petitions will be considered by the Regional Administrator at the time the post-closure plan is submitted and at five-year intervals after the completion of closure.

POST-CLOSURE USE OF PROPERTY AND NOTICE IN DEED TO PROPERTY

Synopsis of Proposed Regulations and Rationale

The proposed regulations, §250.43-7(b), required owners or operators of disposal sites to record a stipulation on the deed of property. The stipulation stated that future use of the property cannot disturb the final cover, the liner, or the monitoring system of the facility.

EPA required the deed stipulation so that any future prospective purchaser would know that he was obtaining a hazardous waste facility or a closed hazardous waste facility. Without this knowledge, a new purchaser might unknowingly seek to use the property in a way that would endanger public health or the environment. Moreover, the stipulation would limit future use of disposal facilities, to prevent any disturbance of the site which could cause contaminants to be released. For example, disturbing the cap of a landfill allows liquid to infiltrate the landfill and the liquid increases leachate generation. The Love Canal incident cited earlier in this background document shows that disturbing the final cover of a site can lead to disastrous results.[1]

Comments, Analysis, and Response

One commenter noted that an operator who does not have legal title to a hazardous waste facility may be legally unable to record anything in the land records. EPA has accordingly revised the proposed language to make it clear that the owner must record the required notice. If such notice is not recorded, the operator will not receive a permit.

Another commenter said that a deed stipulation is not an adequate method of controlling future use of a site, and that some other method should be used. EPA, on reflection, agrees and feels that a more direct and more readily enforceable method of controlling future land use is preferable. As a result, a new regulation has been incorporated which precludes future uses which disturb the containment or monitoring systems unless the disturbance is necessary to clean up a problem or it can be shown that any potential hazard will not be increased. The deed stipulation has therefore been changed to a notice on the deed (or other instrument which will appear in a title search) that the property contains a hazardous waste site, and that Federal regulations (the stipulations mentioned above) govern the use of this site.

During interim status the owner must record the stipulation on the deed, but need not show EPA that he has done so. This follows the general rule that owner or operator interaction with EPA will be held to a minimum during interim status.

A general area of comment concerned the future use of sites. One commenter on this subject said that hazardous waste facilities should be permanently secured, and not considered for any future land use. Other commenters said that the non-disturbance provisions foreclosed possible productive future uses, and were not a good idea. They added that not allowing the containment or monitoring system to be disturbed could make remedial action at a closed facility impossible. At the very least, they argued that EPA should "establish procedures for an EPA hearing whereupon the future owner or operator could demonstrate that the need for the cover or liner is unncessary due to changed conditions since he has cleared up the situation that necessitated its existence initially, or that the cover or liner must be disturbed in light of changed conditions."

EPA agrees that possible productive future uses should not be precluded so long as these uses do not endanger health or the environment. Thus, the final regulations permit disturbing the cover, liner, containment system, and monitoring system if the owner or operator can demonstrate that it is essential to the proposed use of the property and will not endanger human health or the environment, or that the disturbance is necessary to reduce environmental contamination or a threat to public health. Once the owner or operator has demonstrated these conditions to the Regional Administrator, it will be possible for him to mine a closed site, remove the waste and use the site for another purpose, or disturb liners, covers, etc., to take remedial action.

Another commenter stated that "specific approval by the EPA Regional Administrator of a new use should be required." EPA does not agree that in all cases the Regional Administrator should have to approve a new land use. If the new land use does not disturb the integrity of the facility, EPA need not approve the new use. The Agency, for example, does not care if a golf course is converted to a botanical garden. If the new use disturbs the final cover, liner(s), containment system, or monitoring system, then the interim status regulations require the Regional Administrator to approve the disturbance.

Synopsis of §265.117(c) and §265.120 of the Interim Status Regulations

The interim status regulations require that post-closure use of disposal facilities may not ordinarily disturb the final cover, liner(s), or other components of the containment or monitoring system. However, post-closure use may disturb the cover, etc., if the disturbance is both necessary to the property use and will not result in an increase in the potential for a human health incident or environmental degradation. The cover, etc., may also be disturbed if the disturbance is necessary for remedial action.

During interim status, owners of disposal facilities must record on their deed, or other instrument normally examined during a title search, a notation indicating that the property was used as a hazardous waste disposal facility and that land use restrictions apply.

Text of §265.117(c) and §265.120 of the Interim Status Regulations

§265.117 Post-closure care and use of property; period of care

(c) Post-closure use of property on or in which hazardous waste remains after closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the facility's monitoring systems, unless the owner or operator can demonstrate to the Regional Administrator, either in the post-closure plan or by petition, that the disturbance:

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

(2) Is necessary to reduce a threat to human health or the environment.

§265.120 Notice in deed to property

The owner of the property on which a disposal facility is located must record, in accordance with State law, a notation on the deed to the facility property--or on some other instrument which is normally examined during title search--that will in perpetuity notify any potential purchaser of the property that: (1) the land has been used to manage hazardous waste and (2) its use is restricted under §265.117(c).

NOTICE TO LOCAL LAND AUTHORITY

Synopsis of the Proposed Regulation and Rationale

The proposed version of §250.43-7(1) required owners or operators of disposal facilities to file survey plats with the Regional Administrator and the local land authority within 180 days of the completion of closure. These plats were to be certified by a professional land surveyor, and show the type and location of hazardous waste disposed of in the facility.

There were three separate reasons for requiring the information on the plat. In the event of a problem after post-closure, remedial action becomes much easier if the responsible party knows the location of the different wastes. If, for example, ground-water monitoring during the post-closure period detects heavy metals, and if the site accepted limited quantities of heavy metals, knowing the location of these wastes makes cleanup easier. The location and nature of wastes could also be useful in determining where to sink additional monitoring wells, what substances to test for during chemical analyses, what protective equipment to bring for remedial work, etc.

The possibility of future resource recovery presents another potential need for a permanent record of waste location. If technology develops and costs become economical, portions of disposal facilities might be "mined" to recover previously abandoned substances. In this event, the plat will provide the information on where the mining should occur.

Finally, the information on the plat is important for local land use. Utility companies routinely inspect plats when locating rights-of-way, and highway departments inspect plats before building roads. Also, in future years, current or future site owners may find it necessary to locate the buried waste accurately.

These plats should be filed with both EPA and the local land use authority. In the event of a problem, EPA or other emergency response officials may need to know the location of the wastes. For rights-of-way, easements, and similar situations, the company that wants the right-of-way routinely searches the local land use authority files. This search would reveal that the land had been used for disposing of hazardous waste. Moreover, future owners may want this information as well in the event they need to excavate in the area.

Comments, Analysis, and Response

One commenter pointed out that the owner or operator could not prepare the plat, nor could the surveyor certify the type of hazardous waste in each cell or trench.

EPA agrees that the proposed language was slightly ambiguous. It is clear that only the owner or operator can provide the information regarding waste type and location while only the surveyor can prepare the plat and relate it to permanent benchmarks. The final regulations clearly express this division of these requirements.

Another commenter argued that it is difficult to justify the need for having an engineer certify proper closure in addition to recording the certified survey plat.

EPA feels that both are necessary as each serves a separate purpose. Certification of closure helps ensure that the closure is proper; it is the final, and probably the most important, action in the design of the site. The survey plat, on the other hand, represents the first step in the post-closure phase. The purpose of the plat is to provide information if problems arise after the operating period, if resources are to be recovered, or if it is necessary to locate water mains, power lines, etc.

One commenter also raised the argument that in order to certify the plat, the surveyor would have to be present at the site constantly. In the final regulation, the surveyor is responsible only for preparing and certifying the plat, which indicates the location and dimensions of cells or trenches. This plat can be prepared from the operating log of the facility, so the surveyor would not always have to be present at the facility.

One commenter suggested that the survey plat filed with local authorities should identify the post-closure rquirements of these regulations. EPA does not see the advantage of such a requirement. The Agency foresees that the plats will be examined only in the event of problems, resource recovery operation, or in conjunction with easements. EPA is requiring, however, that a note be placed on the plat warning that Federal regulations control disturbance of the site.

Another commenter argued that the survey plat shold indicate only the location of the primary hazardous wastes. The Agency disagrees. Because the plats will be useful in taking remedial actions and in resource recovery, they should contain the location of all hazardous waste. Furthermore, the Agency does not have criteria to distinguish between primary hazardous wastes and other hazardous wastes.

Synopsis of §265.119 of the Interim Status Regulations

In interim status, the owner or operator of a disposal facility must submit to the Regional Administrator and the local land authority a survey plat indicating the location and dimension of cells, trenches, etc. The plat must be prepared by a professional land surveyor, and contain a note that Federal regulations apply to the land which limit its use. The owner or operator must also submit to the Regional Administrator and the local land authority the type and location of waste disposed of in each cell, trench, etc. The owner or operator must submit the certification and type and location records to the Regional Administrator and the land authority within 90 days after completing closure. During interim status, the owner or operator must also submit records showing type and location of waste disposed of prior to the promulgation of these regulations to the degree that his records and memory allow.

Although no comments were received on the subject, the time allowed for filing of the documents has been decreased from 180 to 90 days after completion of closure. Small-scale surveys of this type can be performed quickly and the records of waste location are supposed to be maintained during site life. Therefore, a 90-day filing rule should present no difficulties. The Agency is concerned that the longer the period allowed, the more likely is the possibility of records getting lost or vegetation obscuring waste locations. Further, it is possible that someone might need to use the information, even within the first six months.

Text of §265.119 of the Interim Status Regulations

§265.119 Notice to local land authority

Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local land authority and to the

Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local land authority must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in §265.117(c). In addition, the owner or operator must submit to the Regional Administrator and to the local land authority a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept.

COMPLIANCE WITH FINANCIAL REQUIREMENTS

Synopsis of Proposed Regulation

The proposed regulations, §250.43-7(a), required that owners or operators of hazardous waste facilities comply with the financial requirements of §250.43-9.

Comments

EPA received no comments on this paragraph in the closure regulations.

Rationale for Interim Status and General Status Final Regulations

In the interim status regulations, EPA deleted this section of the closure and post-closure regulations. Compliance with financial requirements is mandated by the financial requirements section. There is no reason for closure and post-closure regulations to repeat these requirements.

POST-CLOSURE LEGISLATION

Comments and Response

Although it is not relevant to the adequacy of these regulations, one commenter suggested that EPA seek legislation to require deeding permitted hazardous waste landfills to the Federal Government or an appropriate State agency at the end of closure, before the post-closure period begins. The commenter felt that this would (1) provide credibility to the sites, (2) provide better control of waste disposal practices, and (3) settle the question of who is liable after post-closure.

EPA is not currently considering recommending such legislation. However, a State with an authorized program could follow such an approach on its own. In fact, Oregon does require deeding of the facility to the State.[10] One general principle EPA has followed in developing hazardous waste regulations is that the beneficiaries of activities should bear the full social cost of these activities. Deeding facilities to the Federal Government would violate this principle.

For a company that disposes of waste, providing for safe and secure disposal even after the disposal site closes is part of the cost of business. Since the owner or operator of disposal sites must maintain the sites after closure, disposal costs will be higher than if site were deeded to the government at closure. The disposer passes on some of this increased cost to the waste generating company, which in turn passes on some portion of the cost to the consumer. Those who benefit from the production of the waste (disposers, consumers, and generators) bear the cost, rather than the society at large. This would not be true if the disposer deeded the site to the Federal Government at closure.

Furthermore, if the disposer keeps control of the site following closure, he has a stronger incentive to operate and close the site properly than he would if the site were deeded to the Federal Government following closure. Responsibility for one's actions is a strong incentive to proper performance.

Finally, EPA does not agree with the three reasons for deeding sites to the Federal Government. The entire purpose of the hazardous waste regulations is to provide better control of waste disposal practices. Assuming these regulations are fully effective as the Agency intended, then deeding closed sites to the Federal Government will not significantly improve this control. Furthermore, EPA believes that promulgating regulations designed specifically to protect the public health provides the necessary credibility to sites meeting these requirements. Finally, deeding sites to the Federal Government settles the question of liability only if the Federal Government becomes liable for the sites. The Agency currently thinks responsibility is better settled, for the reasons discussed above, if the disposer remains responsible during the post-closure period.

One commenter suggested that all post-closure care should be the responsibility of the Federal Government, if closure were satisfactory to EPA. A national fund, raised "by a disposal fee commensurate with the type and quantity of wastes deposited and the estimated cost of post-closure care," would pay for any necessary remedial actions. As previously discussed, the Agency is in favor of such a fund since it would allow an extended period of post-closure monitoring and maintenance. As the Agency envisions it, owners or operators would be required to conduct post-closure activities ad infinitum or for an extended period. Trust funds would not be required, so owners could fund these activities from revenues from other sites or other assets. In addition, each disposer would pay a small annual fee to the "national fund." The "fund" would then cover post-closure activities for those owners which dissolve, go bankrupt, or are not otherwise reachable by legal suit to carry out these responsibilities. The Agency does not have the authority to implement such a fund under RCRA but is considering asking Congress for this authority. The Agency does not now agree, however, that post-closure care should be the responsibility of EPA, for reasons previously discussed. The Agency considers that its role is to ensure that necessary post-closure care is accomplished where the private sector fails in its responsibilities.

IV. RESPONSE TO COMMENTS ON INTERIM FINAL INTERIM STATUS REGULATIONS AND REGULATORY SYNOPSES AND RATIONALE FOR FINAL INTERIM STATUS REGULATIONS

INTRODUCTION

The regulations setting forth Interim Status Standards for closure and post-closure care applicable to owners and operators of hazardous waste treatment, storage and disposal facilities were promulgated on May 19, 1980. These regulations establish under Part 265, Subpart G, the requirements for closure and post-closure care that facility owners and operators must meet during the interim status period. An owner or operator has "interim status" if he has both notified EPA of his existence by August 18, 1980 and submitted Part A of the RCRA facility permit application by November 19, 1980. This allows the facility to continue operating, subject to the Interim Status Standards. The owner or operator then remains in interim status until EPA takes final administrative action on Part B of his permit application.

As discussed in Chapter III of this Background Document, EPA modified most sections of the proposed (December 18, 1980) closure and post-closure regulations in the May 19, 1980 regulations, as a result of careful reconsideration and in response to public comments. Where these comments and additional reflection persuaded EPA to substantially change certain sections of the proposed regulations, the Interim Status Standards under these sections were promulgated on May 19, 1980 as "interim final" regulations. In cases where no persuasive comments were received on the original proposal and few changes were made, interim status standards were promulgated as final on that date. "Interim final" means that, because significant modifications were made to some sections, the public was provided an opportunity to comment on these modified standards. (Nevertheless, while interim final, these standards have the force of final regulations.) Following this second comment period, some of the interim final standards have been further modified, while others remain unchanged. All interim final standards are now being promulgated as final regulations. Those which were already final on May 19, 1980 are being republished so that all final regulations appear together in the Federal Register.

A further clarification of terms is necessary in order to dispel some confusion that has arisen between "interim status" standards and "interim final" regulations. "Interim status" refers to the situation in which owners and operators in existence on November 19, 1980 are permitted to operate prior to being issued permits, provided they meet certain minimum standards ("interim status standards"). These standards are to be met without substantial interaction with EPA. "General status standards" are incorporated into a facility's RCRA permit. "Interim final" denotes a stage in the rulemaking process in which standards (either interim status or general status standards) are in effect but open to public comment and subject to change before being issued as "final" regulations.

Accordingly, this addendum to Chapters I-III of the Background Document on closure and post-closure care focuses on the changes made to certain sections of the Subpart G regulations that were promulgated as interim final on May 19, 1980. Those sections that were interim final on that date, as well as those that were final, are indicated below.

Section 265.110 Applicability. Final

Section 265.111 Closure performance standard. Interim final

Section 265.112 Closure plan; amendment of plan. Interim final

Section 265.113	Time allowed for closure. Interim final
Section 265.114	Disposal or decontamination of equipment. Final
Section 265.115	Certification of closure. Final
Section 265.116	(Reserved)
Section 265.117	Post-closure care and use of property; period of care. Interim final
Section 265.118	Post-closure plan; amendment of plan. Interim final
Section 265.119	Notice to local land authority. Final
Section 265.120	Notice in deed to property. Final
Section 265.121 - 265.139	(Reserved)

This addendum outlines the principal bases for the final regulations on Interim Status Standards for closure and post-closure care and is supplementary to the preamble published in the Federal Register to explain the revised regulations. The format used here generally follows that employed in explaining the interim final regulations on Interim Status Standards in the previous section of this document. This first consists of a synopsis of the interim final sections of the Subpart G regulations as promulgated on May 19, 1980. Next, an exposition of the public comments addressed to the sections that were interim final is presented. Then EPA's analysis and response to these comments, based primarily on concern for threats to human health and the environment, is set forth. Last, a synopsis of each section of the final regulations appears. The text of the final regulations appears at the end of the discussion.

§265.111 CLOSURE PERFORMANCE STANDARD

Although this section was promulgated as interim final in the May 19, 1980 regulations, EPA did not receive any public comments on it and has decided to promulgate it unchanged as a final rule.

§265.112 CLOSURE PLAN; AMENDMENT OF PLAN

Synopsis of the Interim Final Regulation

In interim status, owners or operators must develop closure plans. These plans are required to insure that the goals of §265.111 are met. The plans must include (1) descriptions of how the facilities will meet technical closure requirements, (2) maximum expected waste inventories during site life, (3) an identification of steps for decontaminating equipment during closure, and (4) a schedule for closure showing the anticipated date of final closure and intervening milestones to allow tracking progress. In interim status, this closure plan must be developed, but need not be submitted to EPA until 180 days before the owner or operator anticipates beginning closure; then, within 90 days, EPA will either approve or modify the plan.

The owner or operator may modify or amend his closure plan. He must modify his plan if changes in operating conditions or facility design would affect closure. The Regional Administrator may require modification if he reviews a plan and finds it inadequate.

Comments, Response and Rationale for Final Regulation

[Time Allowed for Preparing Closure Plans]

Several commenters contended that closure plans should not be required by November 19, 1980, as specified in the interim final Interim Status Standards, but rather by some later date. Of these commenters, some argued that allowing six months from the time EPA promulgated the regulations is too short a time to adequately prepare closure plans. Two commenters argued that requiring all owners and operators to develop plans by November 19, 1980 would "impose an unnecessary burden" on them and would be unreasonable except in cases where facilities were planning to close shortly after that date. In these cases, the early closure possibility could be handled by requiring the plan within one year of the effective date of these regulations, i.e., by November 19, 1981, or 180 days prior to closure, if 180 days before closure is earlier than November 19, 1981. (The number of such early closings would be limited anyway, according to these commenters, "since very few owners would go through the process of notifying and submitting Part A of the permit applications and then proceed to close the facility.") In any case, these commenters recommended all closure plans be required by November 19, 1981.

Furthermore, they continued, the large size and complexity of some facilities and the many other requirements of the regulations makes preparing closure plans by this date difficult, if not impossible. For example, another commenter contended that considering specific factors which must be addressed in closure plans for landfills, such as "topographical studies, ground water elevation determination and geological and soil profiles involving soil borings," will take longer than six months. This commenter also proposed that the date for compliance with unsaturated zone monitoring provisions for land treatment facilities be extended to November 19, 1981 to coincide with the compliance date for installation of a ground water monitoring system under Subpart F, since preparing closure plans which adequately account for these factors would require additional time. Finally, others stressed that, since plans are to be used for the cost estimates which demonstrate financial responsibility, enough time must be allowed to carefully prepare them.

EPA agrees that an extension is warranted, and has extended by six months (to May 19, 1981) the date by which owners and operators of treatment, storage and disposal facilities must have closure plans.

First, the Agency recognizes that planning for closure of disposal facilities requires considering many factors, such as methods for keeping wastes safely on site after closure and monitoring and maintaining the performance of the waste containment system. For example, the owner or operator of a landfill, or a surface impoundment to be closed as a landfill, must consider at least six specific factors listed in the regulation under §265.310(c) in describing how he intends intends to control pollution migration, control surface water infiltration, and prevent erosion. The owner or operator of a land treatment facility must address how he will control migration of the waste and its hazardous waste constituents, control the release of contaminated run-off and airborne particulate contaminants, and comply with the regulations controlling foodchain crops. In addressing these, he must consider seven factors specified in the regulations under §265.280(b). Consequently, in light of the complexity of planning for closure of disposal facilities, EPA now believes six months extra time for preparing plans is warranted.

This decision reflects the importance with which the Agency regards closure plans. Well-developed closure plans will play a critical role in an effective and smoothly operating hazardous waste management system, and therefore sufficient time should be available to prepare them carefully and accurately. In general, closure plans are extremely important because they show how a site can be closed in a way that will protect human health and the environment. More specifically, closure plans are necessary to enable owners or operators to plan ahead with closure in mind, which they must do if closure is to be accomplished promptly and efficiently. Another benefit of carefully developed closure plans is that, by making owners or operators anticipate specific steps that must be taken to close properly, these plans serve as a check that actual operations at the facility are proceeding in a prudent and responsible manner that will allow closure to become merely a continuous extension of an already well-run operation.

Despite the lesser degree of complexity in planning required for the closure of treatment and storage facilities, similar logic for an analogous extension applies to these facilities.

Second, the financial requirements will not be effective until Spring, 1981. An important purpose of closure plans is to form a basis for closure cost estimates, and thereby determine the required level of financial responsibility. The gains to the regulated community from allowing an extra six months to prepare these plans, and the benefits to society from better prepared plans, outweigh the losses from having the plans six months later, given that the financial responsibility regulations will not be effective until then in any case.

Third, the Office of Management and Budget approved EPA's Part 264 and 265 reporting requirements under the Federal Reports Act on the condition that EPA extend until May 19, 1981 the deadline by which disposal facilities must prepare closure and post-closure plans.

The Agency, in extending the compliance deadline, rejects arguments by commenters advocating an extension beyond May 19, 1981.

First, in preparing closure plans, owners or operators are compelled to anticipate closing their facilities in an orderly and fully satisfactory manner. Planning ahead requires operating their sites with ultimate closure in mind, which will help to ensure that current operations are sound and consistent with effective closure. Therefore, the earlier closure plans are developed, the earlier they will be able to help owners and operators achieve good operating practices. Furthermore, twelve months (May 19, 1980 to May 19, 1981) is a reasonable amount of time for developing closure plans, since most conscientious owners and operators should already have at least a tentative idea of what an adequate closure plan should consist of, given the specific conditions of their facilities. For example, responsible owners and operators of landfills are already aware of relevant topographical and hydrogeological factors at their sites. In addition, they are in many cases already partially closing their sites on an ongoing basis. Furthermore, the proposed closure requirements of December 18, 1978 have provided over 2 years for owners or operators to begin planning proper closure activities.

Second, the closure plans serve as the basis for cost estimates. These, in turn, underlie the financial responsibility requirements. The Agency feels that the financial requirements are extremely important in protecting human health and the environment, and wants to implement them as soon as practicable. Because implementing the financial requirements requires the closures plans, EPA wants these plans to be developed as soon as possible.

Third, the use of the interim status draft guidance document for closure and post-closure care, coupled with a careful reading of the regulation, should provide sufficient information from which to write an adequate closure plan by May 19, 1981. This document is now available from the EPA Regional Offices.

Fourth, EPA may be compelled to require unexpected early closure, e.g., if an owner goes bankrupt or a site reaches the end of its life sooner than expected. Since closure must be done in accordance with an approved plan, an owner or operator should prepare a plan at the earliest possible date.

Other commenters argued that plans should be required to be prepared during interim status only immediately prior to closure. Some commenters argued that EPA cannot logically justify imposing at present the substantial time and effort needed to prepare such plans, since they are based only on interim status rather than final regulations, final performance standards or permanent standards under Part 264. Specifically, they argued that amendments to old regulations or promulgation of new ones would necessitate frequent revisions of the plans.

Also, one commenter asserted that since plans will be directly linked to permit conditions, the requirement to have them should be a condition of facility permits. Consequently, this commenter proposed, preparation of plans should not be required until a facility permit is issued, except for facilities closing prior to issuance of a permit but after the effective date of these regulations (i.e., November 19, 1980), which should "submit" a plan at least 90 days before the expected date of starting closure. Another commenter argued that plans should only be required within one year of the anticipated closure, with submission 180 days before, except for facilities closing within one year of promulgation, in which case they should have plans on the effective date of these regulations.

EPA disagrees with these comments. Again, there are two major reasons for requiring closure plans by May 19, 1981. These reasons hold irrespective of whether an owner or operator applies for a permit to operate eventually under General Status Standards, or the fact that the compliance deadline was issued under "interim final' Interim Status Standards.

First, to be able to close efficiently and adequately an owner or operator always needs to plan ahead and operate with closure in mind. Second, to make sure that the public is not saddled with financial responsibility when a facility goes bankrupt or otherwise closes early, the owner or operator must provide financial assurance for closure, and the cost estimate upon which this assurance is based must be derived from the closure plan. Therefore, these plans need to be available as soon as possible during interim status.

On the question of facilities not planning to close before permitting, the Agency agrees with one commenter's premise that when a permit is issued to a facility, elements of the closure plan for that facility will, in large part, be directly related to conditions contained in the permit insofar as the permit conditions change the way the facility is operated or closed, and has addressed this point in Chapter III of this Background Document. However, the Agency does not share the commenter's conclusion that closure plans therefore should generally be required only as a condition of the initial RCRA permit. Some facilities will close before permitting so that closure plans, keyed to the requirements of the interim status regulations are needed. In the case of facilities that will not close until sometime after they have started operating under a permit, it is necessary for them to have plans available well before the permit process begins. During interim status, owners and operators of these facilities must be able, at the earliest possible date, to provide closure cost estimates for financial assurance and to ensure that, by operating with closure in mind, if some contingency should make premature closure necessary, it could be carried out effectively. Closure plans could, of course, always be changed under Part 264 general status, if conditions require it later on, either before or after permitting.

[Closure Plan Schedule]

Another commenter questioned the wisdom of requiring specific dates to be included in the closure plan as part of the schedule for final closure, unless the intended life of the facility can be predicted, as for landfills. Since storage tanks or incinerators, if properly designed and maintained, may be used indefinitely according to this commenter, they might not have a predictable intended life. Consequently, plans based on the intended life for such facilities would be meaningless; not until closure is actually scheduled could realistic dates be established. Therefore, this commenter suggests that Section 265.112(a)(4) should be amended "so that planning for intended life applies only to facilities that are designed and operated with such a life as part of the design and operating considerations."

EPA largely agrees and has shifted the basis for scheduling from anticipated dates to the estimated total time required for closing the facility and the estimated time required for intervening closure activities. The only date still required is for the expected year of closure. This date has been retained as necessary for meeting the financial responsibility requirements, (e.g., trust funds must be built up over five years or by the expected date of closure, whichever comes first), and as a trigger for administrative action, i.e., to notify the Agency in advance that it should begin overseeing closure at a certain time in the future. EPA thinks that a schedule for final closure and intervening closure activities primarily based on the length of time for various activities is more realistic than one based on specific dates, since this revised approach presupposes less accurate foresight.

In accordance with this change, EPA has also added a provision, under 265.112(b), that requires an owner or operator to amend his closure plan whenever there is a change in the estimated year of closure of his facility. Previously, an owner or operator only needed to amend his closure plan whenever changes in operating plans or facility design affected the closure plan. In the case of facilities such as storage tanks and incinerators for which, as one commenter stated, site life is difficult to predict until closure is actually scheduled, the closure plan would have to be amended only when the year of closure could be realistically estimated.

Two commenters criticized the requirement to provide a schedule for final closure in the closure plan which would incorporate specific dates for various steps in the closure process. One of these suggested that it would be more appropiate for a facility to include the anticipated date when wastes will no longer be received in its Annual Report rather than in its closure plan. The Agency does not believe such a change would serve any useful purpose; on the contrary, including an anticipated schedule in the closure plan is an integral component of the plan and must remain part of it.

Given the possibility that the schedule for closure and other elements of a plan may change, the Agency is making explicit in the final regulation that the copy of the closure plan the owner or operator is required to keep at his facility must include revisions to the plan as well.

[Submission of Closure Plan]

One commenter suggested that submission of closure plans should be required only 90 days before closure begins, rather than at least 180 days before. Likewise, the commenter said that the Regional Administrator should modify, approve, or disapprove the plan within 30 days of receipt, rather than within 90 days, as stated in the interim final regulations.

Another commenter speculated that owners and operators might not prepare closure and post-closure plans properly. This commenter doubted that these closure plans would be realistic or accurate in their amounts or methods for closure or care in the absence of certification by an independent professional civil engineer or submission for review and approval to the Administrator, Regional Administrator or his designee.

Rather, argued this commenter, the accuracy of these plans is left entirely up to the owner or operator. In such a situation, there would be a tendency to underestimate the extent of care required. Addressing §265.112(c) this commenter said: "If the owner or operator is only required to submit his closure and post-closure plans within 180 days before date of closure to the Regional Administrator, it may then be too late to correct any shortcomings in the amount provided by the owner or operator . . ." The commenter advocated additional review of these plans before facility operations begin, and periodically during the time financial security arrangements are being made.

For administrative purposes, the Agency believes closure plans need to be submitted well in advance of 90 days before closure - at least 180 days before - since the Regional Administrator would in some cases need a full 180 days to review a plan adequately, publish a notice of the plan, provide adequate time for the public to submit written comments, review the comments, hold a public hearing, if necessary, decide whether the closure plan is adequate or requires modification, and if unacceptable, give the owner or operator time to submit a new plan and accept or modify this plan as the final approved closure plan. Therefore, as rewritten in the final regulation, §265.112(c) grants the Regional Administrator 180 rather than 90 days, as in the interim final regulation, in which to approve a closure plan. EPA believes 180 days is a reasonable amount of time for this review and approval process, but in agreement with the previous commenter's argument that even 180 days may not be sufficient to guarantee that plans are well prepared, has added the following provision to the regulation.

Under §265.74(a) of the Interim Status Standards, the Regional Administrator is generally authorized to request any records, including plans, from owner or operators. Based on this Section, EPA is specifically authorizing the Regional Administrator to request, at his discretion, closure plans to be submitted to EPA at any time during the active life of the facility, or to inspect or copy plans during site inspections because the Agency is concerned that owners and operators might do a less than adequate job in preparing them. Indeed, all Regional Administrators are urged to audit a statistically significant sample (e.g. 5%) of plans to assure adequate preparation by owners or operators. However, requiring all plans to be sent in to EPA would not result in improved Agency review of plans, since EPA does not currently have sufficient resources to examine all the plans if they were to be sent in.

According to this regulation, a Regional Administrator could collect a small random sample of plans, and from this sample could determine with accuracy the proportion of adequate plans. If a large, significant proportion of closure plans were inadequate, EPA would have decide whether to reprogram resources from other programs or other activities under RCRA to enforce against inadequate plans, or perhaps to seek additional resources.

The Agency does not accept the argument that requiring a professional engineer to certify the plans would produce better plans. In fact, most of the key elements of the plan are the kinds of things that an engineer could not meaningfully certify. As an example, the plans require the owner or operator to "estimate his maximum inventory of wastes," and to "identify the maximum extent of operation which will be unclosed." Factors such as these are matters of intent, rather than fact, and as such are uncertifiable. (In contrast, certification of closure under §265.115, involves a professional engineer's determination of the fact that a facility has been closed in accordance with an approved closure plan. A prudent owner or operator would, however, probably want an engineer to certify partial closures; reference to such certifications would provide acceptable evidence on which part of an engineers certification of final closure would be based.)

Another commenter assailed the validity of EPA's requirement of closure plans for treatment operations, such as a two or three cubic foot capacity filter press. Requiring closure plans for such an apparatus, which is used for sludge dewatering in order to reduce waste volume before shipment off-site, "creates an unnecessary regulatory burden on members of the EPA staff, as well as ourselves," wrote the commenter.

EPA appreciates the logic of this comment - that waste volume reduction should be encouraged rather than penalized - but believes that, since operations of this sort are so small and relatively simple, the effort needed to develop closure plans for them is minimal. This would not impose an undue burden on either EPA or members of the regulated community.

Synopsis of §265.112 of the Final Interim Status Regulations

This section differs from the interim final regulation in several respects. First, the closure plan need not be prepared and on hand at the facility until six months after the effective date of these regulations, rather than on that date as in the interim final version.

Second, the interim final regulation stated that the closure plan must include an estimate of the maximum inventory of wastes in storage or in treatment at any given time during the life of the facility. The final regulation modifies this language to "wastes in storage and in treatment" to encompass all wastes that could be at a facility.

Third, the plan must include an estimate of the expected year of closure and, at a minimum, a schedule of the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (For example, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included.) This contrasts with the interim final requirement that specific anticipated dates for various steps in the closure process and for final closure be listed in the plan.

Fourth, an owner or operator is now required to amend his closure plan whenever there is a change in the expected year of closure of the facility.

Fifth, the owner or operator must include all revisions to his closure plan in the copy of the plan that he keeps at the facility.

Finally, the procedure by which the Regional Administrator approves closure plans has been modified in the final regulation. The interim final regulation had required the Regional Administrator to provide the affected public with an opportunity (through a newspaper notice) to submit written comments on closure plans. The final regulation authorizes him also to grant a request for a public hearing or provide one at his own discretion, whenever such a hearing might clarify one or more issues concerning the plans. The Regional Administrator must give public notice of a hearing at least 30 days before the hearing.

The interim final interim status regulation had provided a 90-day period for approval or disapproval of the closure plan, but did not specify what happens if the Regional Administrator disapproves the plan. In the final interim status regulation, the Regional Administrator may approve, disapprove or modify the plan within 90 days of its receipt. If the Regional Administrator disapproves the plan, the owner or operator is allowed another 30 days to rework his plan; otherwise, he must accept the Regional Administrator's modification, if applicable. The owner's or operator's revised plan is then again reviewed for approval or modification within 60 days. If the Regional Administrator makes any changes to the plan this time, the modified resubmitted plan becomes the operating, approved closure plan.

§265.113 TIME ALLOWED FOR CLOSURE

Synopsis of §265.113 of the Interim Final Interim Status Regulations

In the interim final interim status regulations, the owner or operator must follow the plan, treat, remove from the site, or dispose of on-site, all hazardous wastes in storage or in treatment, and ordinarily close within six months of the final shipment of waste. The Regional Administrator may allow a longer closure period if the owner or operator can show that it will take longer than than six months to close the facility and that the longer period poses no threat to human health or the environment.

Comments, Response and Rationale for Final Regulation

Several commenters claimed that the 90-day time period for completing treatment, disposal or removal of wastes from treatment and storage facilities is too short, and is arbitrary and unsupported by scientific data or hazardous waste management experience. The commenters stated that this period is unrealistic for certain types of wastes. For example, one commenter claimed that phosphatic clay settling areas would take more than the alloted 90 days from final receipt of wastes to complete settling. An analogous argument was put forward for "slimes" disposed of in surface impoundments.

One commenter emphasized the impracticality of removing all hazardous waste from facilities such as utility boilers within this time frame. Since "utility boilers may be considered to be 'thermal treatment facilities' when used to thermally degrade certain wastes, such as metal cleaning solvents," this commenter concluded that they would, under a rigid application of §265.113(a), necessarily have to shut down after 90 days upon discontinuing their 'waste treatment' function in order to remove even minor 'waste treatment' residues, regardless of their ability to otherwise continue operating. "Even if a boiler were discontinuing all operations it may not be feasible or appropriate to remove all hazardous waste residues within 90 days, as required by Sections 265.113(a) and 265.381." This commenter argued that "sealing" and "retiring it in place" until it could be cut up for scrap might require more than 90 days, and removing all ash and residues from such a physically complex large boiler could be accomplished within 90 days only at "great and unreasonable expense," if at all. Another factor mentioned by commenters as militating against the 90-day period for treatment, removal or disposal of wastes on-site was the unpredictable availability of third party resources, such as transportation of wastes off-site.

To compensate for these alleged inadequacies, commenters recommended that flexibility be built into §265.113(a) (as in §265.113(b), which governs completion of closure activities) to permit the Regional Administrator to lengthen the period from receipt of final wastes to their disposition beyond 90 days, if necessary to allow better hazardous waste management and closure practices. Such lengthening would be appropriate, the commenters continued, if more than 90 days were needed to deal with problematic wastes and to secure adequate resources for their ultimate treatment, removal or disposal on-site. They concluded that the public would still remain protected under these circumstances by making approval of a longer closure period contingent upon an owner or operator demonstrating that steps necessary to eliminate any significant threat to human health and the environment have been taken.

Two commenters considered the periods arbitrary, despite the Regional Administrator's discretion to vary the six-month time period for completion of closure, because "the mere establishment of such periods will tend to make them virtually mandatory in all cases." Finally, two commenters suggested that specific time periods for final treatment and closure be replaced by discretionary time periods or be stipulated on a case-by-case basis, depending on the information in a facility's closure plan.

EPA agrees that the 90-day period for the treatment, removal or disposal of wastes may be too short for some types of wastes, for reasons expounded in these comments. EPA has therefore modified §265.113(a) to accord with §265.113(b), in order to explicitly give the Regional Administrator parallel authority to approve a longer period. As in §265.113(b), the condition of approval is the facility owner's or operator's demonstration (1) that the planned activities will necessarily take him more than 90 days to complete and that (2) he is taking all steps necessary to eliminate any significant threat to human health and the environment.

EPA rejects the recommendation of some commenters that these periods be stipulated according to information in specific closure plans. The 90-day and six month periods, together with opportunities for approval of longer periods, are reasonable standards for most situations, especially for landfills, and are relatively simple to implement. Replacing this standard by a case-by-case approach is unnecessary and administratively cumbersome. EPA prefers that particular owners and operators needing an extension make an affirmative demonstration of why final waste treatment, removal or disposal would take longer than 90 days or why closure would take longer than six months. The claim that these periods would tend to become mandatory is belied by the ample opportunity available to owners or operators to affirmatively demonstrate their need for an extension.

EPA has also added language to allow the Regional Administrator to delay final closure where an owner or operator has begun closure but another person desires to reopen and operate the facility.

Synopsis of §265.113 of the Final Interim Status Regulations

In the final interim status regulations, owners and operators must, within 90 days after receiving the final volume of hazardous wastes, treat all hazardous wastes in storage and in treatment, or remove them from the site, or dispose of them on-site in accordance with the approved closure plan. The interim final regulation had specified wastes in storage or in treatment. Since facilities both treat and store wastes, this change was made to cover these cases. Section §265.113(a), parallel to §265.113(b), allows the Regional Administrator to approve a longer period under §265.112(d) §265.112(d) for final waste treatment, removal or disposal if the owner or operator can demonstrate that: (1) the required or planned activities will, of necessity, take him longer than 90 days to complete, and (2) he has taken all steps to eliminate any significant threat to human health and the environment. Finally, the Regional Administrator may approve a longer closure period (including a long-term deferral of final closure) to allow a person other than the owner or operator to recommence operation of the site.

§265.114 DISPOSAL OR DECONTAMINATION OF EQUIPMENT

This Section was promulgated as final in the May 19, 1980 regulations.

§265.115 CERTIFICATION OF CLOSURE

This Section was promulgated as final in the May 19, 1980 regulations.

§265.116 (Reserved)

§265.117 POST-CLOSURE CARE AND USE OF PROPERTY; PERIOD OF CARE

Synopsis of §265.117 of the Interim Final Interim Status Standards

Post-closure care requirements apply only to disposal facilities. Post-closure care consists of at least (1) monitoring and reporting, and (2) maintaining monitoring and waste containment systems. Maintenance of security requirements may also be required where appropriate.

The interim final interim status regulations require that post-closure use of disposal facilities generally must not disturb the final cover, liner(s), or other components of the containment or monitoring system. However, post-closure use may disturb the cover, etc., if the owner or operator demonstrates both that the disturbance is necessary to the property use and will not increase the potential hazard to human health or the environment. The cover, etc., may also be disturbed if the disturbance is necessary to reduce a threat to human health or the environment, such as a remedial action.

The interim final interim status regulations require owners or operators of disposal facilities to provide 30 years of post-closure care. The owner or operator may petition the Regional Administrator to shorten the time period or modify the requirements for cause. The Regional Administrator can also, for cause, require that all or part of post-closure care requirements be continued for a specified time period past 30 years. An owner or operator or the public may request an extension or reduction of the post-closure care period, not more often than once every five years. This last provision was added to limit the frequency and thus the proliferation of similar petitions. An EPA decision to reduce the post-closure care period, where cause can be shown, would reduce the economic impact of the financial regulations.

Comments, Response and Rationale for Final Regulation

One commenter questioned whether the basic requirements for post-closure care are sufficient to guarantee compliance with the closely associated financial requirements. Specifically, this commenter argued that "since the least required for post-closure care is (1) ground-water monitoring and reporting, and (2) maintenance of monitoring and waste containment systems, such a minimum requirement could, as often happens, become the maximum requirement. We expect that the hazardous waste management industry will use only those two criteria in developing the cost estimates that are the basis for the closure and post-closure financial arrangements."

EPA recognizes that requiring only minimum post-closure care activities could result in owners and operators developing insufficient post-closure cost estimates. Ostensibly, the above commenter is concerned that, because EPA will not review closure and post-closure plans during interim status until 180 days before an owner or operator expects to begin closure, there would not be enough lead time to rectify plans with minimal or inadequate cost estimates, and consequently, to gather sufficient funds for proper closure.

However, EPA believes several constraints will operate to mitigate this possibility. First, during interim status, as well as later on during general stauts, facility owners or operators must state their cost estimates for closure and, in the case of disposal facilities, for annual post-closure care in an annual report, as required under §265.75(g). The Regional Administrator could then discern any discrepancies between these cost estimates and what he knows to be the conditions at a particular facility which might signal potential problems with financial assurance.

Second, as discussed with respect to closure plans under §265.112, the Regional Administrator may request an owner or operator to send in his post-closure plan at any time during the active life of the facility, or may review plans during site inspections. Although most of the plans requested would be selected randomly, a Regional Administrator who is skeptical that the cost estimate for post-closure care contained in a particular facility's annual report might be inadequate could review the owner's or operator's post-closure plan. Since this estimate is based upon this plan, the Regional Administrator could thereby confirm or disconfirm his suspicions of unsound financial assurance for post-closure care at that facility.

In this manner, the Regional Administrator will be able to identify cases of inadequate preparation for financial responsibility for post-closure care early enough so that they can be corrected and sufficient funds can be made available before closure begins. As final arbiter of whether the method proposed in the post-closure plan for meeting the post-closure care requirements is practicable, and correspondingly, whether these requirements have been adequately addressed in rendering realistic cost estimates for financial responsibility, the Regional Administrator in effect determines if an owner's or operator's interpretation of 'minimum' requirements as 'maximum' ones is acceptable.

Third, assurance is also provided in the final regulation against the preparation of weak post-closure cost estimates by addition of the requirement that owners or operators must amend their plans whenever events occur during the active life of the facility or during the post-closure care period which affect the plan.

(Inadequate cost estimates for closure and post-closure activities should be minimized by EPA's review of post-closure plans as part of the permit process, for general status, which should occur before most disposal facilities close.)

Although no comments were received on §265.117(b) of the interim final regulation, EPA has made a small but significant change to one of the provisions of this Section. The interim final version had empowered the Regional Administrator to maintain security requirements during the post-closure care period when "short term, incidental access by the public or domestic livestock may pose a hazard to human health." The final regulation omit the words "short-term, incidental," which modify "access by the public," since long-term access could also result in harm to human health, e.g., if erosion occurs.

The major complaint expressed in several comments on §265.117 concerned the length of the post-closure care period under paragraph (d). In preparing responses to these comments, EPA realized that §265.117(d) of the interim final regulations was incomplete and possibly confusing to some readers. As a result, the Agency has rewritten this Section to enhance its clarity and comprehensiveness, while retaining its basic concepts and procedures. EPA has also restructured this Section within

Subpart G by shifting most of it into §265.118 in the final regulations. This change makes §265.118 on post-closure plans more consistent with §265.112 on closure plans.

The main purpose of this restructuring is to outline more clearly and logically the ways in which the post-closure care requirements and the duration of the post-closure care period specified in the post-closure plan may be modified, and to elucidate the processes, especially the petition mechanism, by which these modifications may be effected. In short, it is intended that by assimilating the core of the interim final §265.117(d) to the final §265.118, EPA can more forcefully make the point that any modified post-closure care activities must be in accordance with modifications to the post-closure plan as specified in §265.118, and indeed are required as a result of these plan modifications. All comments addressed to §265.17(d) are discussed under "Comments, Response and Rationale for the Final Interim Status Regulations" for §265.117. However, a further explanation of specific changes to §265.117(d) appears in the "Synopsis of §265.118 of the Final Interim Status Regulations."

The post-closure period applies only to disposal facilities; treatment and storage facilities are not subject to post-closure care requirements.

Some commenters argued that the post-closure care period of 30 years is too long and, hence, that the regulation as presently written is burdensome and inflexible. They argued that a much shorter post-closure care period would be appropriate for the majority of hazardous waste disposal facilities.

Contending that a typical hazardous waste management facility is an on-site disposal facility ancillary to an industrial operation, one commenter concluded that, after closure, it would pose little threat to human health or the environment. Among the reasons cited in support of this claim were that "such facilities handle only a limited number of waste streams, their wastes are managed by knowledgable persons in close proximity to the point of generation, and the measures spelled out in their closure plans will further reduce any residual risk during the post-closure period." For all but larger facilities or facilities that handle extremely hazardous wastes, these commenters recommended, "a minimum of 5 years post-closure care" as an alternative to the 30-year period of care. Longer periods could then be required in individual permits, these commenters proposed, depending on whether site-specific or waste-specific information indicated a threat was posed to human health and the environment.

EPA accepts the argument that 30 years of post-closure care may not be necessary for some disposal facilities but believes this should be specifically demonstrated on a case-by-case basis. The Agency reaffirms its conviction that 30 years is usually a reasonable and necessary amount of time for requiring post-closure monitoring and maintenance. The rationale for the general requirement for a 30-year period, with flexibility for the Regional Administrator to lengthen or shorten it, has been delineated in Chapter III of this Background Document.

However, this rationale can be recapitulated as follows: the typical disposal facility is a landfill or a surface impoundment closed as a landfill. EPA firmly believes it will take 30 years in most cases to determine whether leachate is controlled. Indeed, in many cases, more than 30 years will be required to ascertain the efficacy of monitoring and maintenance requirements, and for these cases the Regional Administrator will need to extend rather than shorten the post-closure care period. The necessity for requiring a period of care longer than 30 years in many cases is demonstrated by the fact that the movement of leachate is gradual and subtle. Hence, its effects are often latent, and might not manifest themselves until after 30 years, despite continuing maintenance care and monitoring operations. Even for "knowledgable persons" at facilities with a "limited number of waste streams," hydrogeologic surprises are commonplace.

Two commenters opined that the 30 year post-closure care period is too rigid because the "detailed requirements found in the petition process," through which the period can be altered, "will make it extremely difficult to shorten the post-closure care period through this vehicle."

Similarly, another charged that "forcing a great many smaller facilities to pursue the costly and time-consuming petition mechanism in order to escape the rigid 30-year requirement is unreasonable when it is clear that many of these facilities should not be subject to those requirements in the first place." As an alternative, these commenters urged EPA to tailor the length of post-closure care periods to individual facilities, without imposing the burden of the petition mechanism, which they alleged would require owners and operators to submit thousands of formal petitions. The commenters suggested this could be done by requiring "an estimated post-closure care period to be included in the post-closure plan, along with a detailed explanation of why this estimated period is appropriate for the site-specific, waste-specific case." They further argued that since an estimate of the post-closure care period would become, in contrast to provisions under the interim final regulations, an integral part of the post-closure plan, any new information indicating the need for a longer period could be accounted for merely by revising the estimate in the plan. Finally, these commenters recommended adjusting particular requirements, such as the length of time financial assurance or ground-water monitoring must be maintained, to meet site-specific conditions under individual permit requirements, including those conditions contained in an approved post-closure plan.

EPA finds these comments unconvincing in several respects. The crux of these comments seems to be that the petition mechanism, being the only method by which owners or operators may request a modification of requirements in their post-closure plans, is burdensome and inflexible because the standard 30-year post-closure care period is burdensome and inflexible. The Agency has already presented, in a previous paragraph, its logic refuting comments critical of the 30-year period with flexibility for individual variances. Correspondingly, EPA also rejects the contention that petitioning makes an inordinate claim on an owner's or operator's resources.

The following arguments state in greater detail the reasons why EPA believes the petition mechanism is practicable. Changes from the interim final to the final regulation concerning the specific procedures and conditions for petitioning are also described below, along with the basic rationale for the petition mechanism itself.

The purpose of the petition mechanism as revised in the final regulations, is to allow (1) a waiver of some or all of the post-closure care requirements or a modification to the duration of the post-closure care period, if the secure nature of a facility makes this practicable, or (2) an extension of the post-closure care period or alteration of post-closure requirements, should a threat to human health or the environment persist. Given that owners or operators have prepared their post-closure plans in a responsible and thorough manner, the additional preparation of petitions to alter post-closure requirements should not involve any significant cost or effort on their part. The information upon which the petitions are based should already be incorporated into the post-closure plans which are to be submitted concurrently. Therefore, in practice, shortening of the post-closure care period or exemption from some post-closure requirements will depend upon an owner or operator providing evidence that his facility is secure. This task should be no more complicated for an owner or operator than it would be were he required to demonstrate the same evidence as a precondition for having variable post-closure care provisions stipulated in his post-closure plan.

Even if one assumes for the sake of argument that owners or operators were compelled to submit "thousands of formal petitions" in order to get the post-closure care requirements in their plans modified, any particular owner or operator would need only submit a single petition in most cases. Finally, owners or operators who implacably believe the 30-year period, or the petition process to alter it, is burdensome, may of course apply for a permit.

Under the General Status Standards, the length of the post-closure care period and scope of the post-closure requirements are to be determined during the permitting process and subsequently written into the permits. However, during interim status, EPA believes that owners or operators need to specifically demonstrate evidence for any for requested alteration of post-closure care provisions through a petition process.

Another reason for establishing a 30-year post-closure care standard period which allows for variation when adequate evidence can be shown, rather than adopting a case-by-case approach, is that it accords better with a basic tenet of Interim Status Standards--that interaction between EPA and the regulated community be minimized.

The time and personnel needed to review a small number of petitions for variances from a standard would be considerably less than the amount required to review many post-closure plans on a case-by-case basis in order to establish specific post-closure care requirements and periods. EPA's approach avoids the misallocation of resources during interim status that adoption of the commenters' recommended alternative would result in, and thereby enables the Agency to concentrate on the more demanding task of preparing to permit facilities under RCRA General Status Standards. It is at this point, during permitting, that a case-by-case review of plans for all facilities applying for permits will be undertaken.

The most important reason for the 30-year post-closure care period, and the concomitant petitioning process, is to ensure financial responsibility for hazardous waste facilities.

Analogous to logic used in the previous argument for a 30-year standard, owners and operators need to be mindful that post-closure care is required for an entire 30 years, unless altered by petition later on, so that they are certain to accumulate sufficient funds to cover post-closure care activities for the duration of the period. These funds must be built up over the life of the site. If allowed to wait until a specific post-closure period is determined at the time plans are reviewed near the end of the site life, an owner or operator may not have collected, or be able before closure to collect, enough funds to pay for post-closure care activities, assuming the stipulated period is longer than he had financially prepared for. Therefore, requiring owners or operators to petition to alter the post-closure care period and requirements ensures that funds will be adequate for at least 30 years of post-closure care. In the event that the period is shortened by petition or at the discretion of the Regional Administrator, thereby reducing the post-clsoure cost estimate required in the plan, the owner or operator may request the Regional Administrator to return any funds in excess of the estimate. The required 30-year post-closure care period and related petition process is therefore aimed at precluding a situation in which insufficient funds are available to support the post-closure cost estimate in a plan that is revised upward. (However, the Agency recognizes that if the period is lengthened beyond 30 years, the post-closure fund will be inadequate. However, for reasons discussed in the May 19 preamble to §265.117, the Agency believes that it would be excessive to set a period greater than 30 years initially.)

Two commenters expressed consternation over the Agency's decision to restrict the time allowed for submitting petitions to extend or reduce the post-closure care period to the time the post-closure plan is submitted and to five-year intervals after the completion of closure. As these commenters put it: "There is absolutely no scientific or logical basis for imposing such a limitation on the submission or consideraation of petitions." Furthermore, they held that "by establishing an arbitrary five-year interval for the submission and consideration of petitions, EPA has established what amounts to a 'parole' system which bears no relevance to any considerations of human health or environmental protection."

EPA concurs with this comment. The final interim status regulation rectifies this by permits petitions during the review period for post-closure plans and anytime thereafter. However, the Regional Administrator will only consider petitions when they evidence new information which directly bears on the post-closure care requirements or on the length of the post-closure care period.

In addition to allowing petitions at any time during the pre-closure review period and post-closure care period, the final regulation also enables the public to petition with respect to one type of post-closure plan modification it previously was not allowed to address. For example, the interim final regulation had restricted public petitions to extending or reducing the period of post-closure care. Only an owner or operator could petition to alter or discontinue some or all of the post-closure care requirements. And in response to such a petition, even the Regional Administrator's authority on alteration was left unclear, since the interim final regulation specified only that he could require the owner or operator to continue one or more of the post-closure care and maintenance requirements contained in the facility's post-closure plan for a specified period of time.

In contrast, the final regulation explicitly states that the public may petition the Regional Administrator, or he may at his own discretion decide, to modify plans in order to alter some or all of the post-closure care requirements based on cause. The Regional Administrator may decide to modify a plan in order to bolster some post-closure care requirements. For example, if unexpected leakage of hazardous waste occurs during the post-closure care period, it might be necessary for him to modify a plan so that more extensive maintenance will be provided, even after cleanup has been completed. Any request for an extension of the post-closure care period or an alteration of post-closure care requirements (e.g., by citizens groups) must demonstrate that such a change is necessary to protect human health and the environment.

The opportunity for the affected public to submit written comments during the post-closure plan review period has been retained in the final regulation, but the opportunity for a public hearing during this period has been added. The Regional Administrator's review period has been increased from 90 to 180 days in order to enable owners or operators to submit another plan for approval should the Regional Administrator disapprove the version originally submitted and to make sure that sufficient time is available to conduct a productive public hearing. The opportunity for such a public hearing, at which issues germane to a plan can be presented, has been introduced to increase due process for all parties concerned and to ensure that better plans will be approved.

In regard to the Regional Administrator's authority to modify post-closure care provisions after closure, some commenters who criticized the limitation of petitions to five-year intervals also questioned the propriety of EPA's allowing him to extend the 30-year post-closure period "if he finds there has been non-compliance with any applicable standards or requirements." Continuing the penal metaphor of their previous comment, these commenters argued that "extension of the post-closure period for any reason other than demonstrated need to protect against significant risks to human health or the environment amounts to no less than a penalty imposed for non-compliance, regardless of whether or not the non-compliance is significant in human health or environmental terms." In sum, the comment concluded, "the imposition of such a penalty is not permissable under RCRA which specifies, in detail, the circumstances under which penalties may be imposed and the procedures for imposing such penalties."

EPA agrees that the reasons for extending the period of post-closure care should be limited only to conditions which violate the chief objectives of RCRA - the protection of human health and the environment.

Only in such cases do the regulations now allow the Regional Administrator to require an owner or operator to continue, in conformance with a modified plan, certain post-closure care requirements for another specified period of time after the initial period. As rewritten, the regulation now makes clear that protection of human health and the environment is the touchstone on which such decisions will be based.

Consistent with changes in the reasons for which petitioning is allowed, and in response to comments urging that post-closure care requirements reflect site-specific conditions, the final regulation now authorizes the Regional Administrator to modify post-closure plans in order to grant a temporary suspension of one or more post-closure requirements if the owner or operator or any member of the public demonstrates just cause. Clearly, the most logical way of ascertaining whether certain requirements need to be maintained, altered or discontinued is by trying to determine whether they are empirically valid. Naturally, any such decision will be depend upon an owner or operator or member of the public first demonstrating just cause that temporary suspension should be undertaken. However, in the interests of greater flexibility, as recommended in some comments, the Regional Administrator may, at the end of the specified period of suspension, terminate or reinstate the requirements if necessary to protect human health or the environment.

In short, the final regulation integrates the petition mechanism with the approval process for post-closure plans more cohesively than did the interim final regulation. The melding of §265.117(d) of the interim final regulation into §265.118 of the final regulation makes clearer how and when petitioning may occur to modify post-closure plans, in accordance with which all post-closure care activities must be performed.

Synopsis of §265.117 of the Final Interim Status Regulations

The final interim status regulations are basically the same as the interim final regulations, except that §265.117(d) has been deleted. In the final regulation, this Section has been divided into its main conceptual components, modified and reincorporated into §265.118. These changes are listed under the "Synopsis of §265.118 of the Final Interim Status Regulation."

A minor change is that the final regulation deletes the words "short-term, incidental" in §265.117(b)(2), so that security requirements may also be invoked whenever any access, whether short or long-term, to a site by the public or domestic livestock during the post-closure care period could jeopardize human health.

Finally, subsection (d) of §265.117 now states that post-closure care activities must be done according to the provisions of the approved post-closure plan as specified in §265.118.

§265.118 POST-CLOSURE PLAN; AMENDMENT OF PLAN

Synopsis of §265.118 of the Interim Final Interim Status Regulations

In interim status the owner or operator of a disposal facility must develop a post-closure plan. The plan must include (1) monitoring activities and frequencies, and (2) maintenance activities and frequencies relating to the cap and final cover, or other containment systems, and where applicable, to the monitoring equipment. In interim status, the owner or operator must develop this plan and maintain it on the premises, but he need not submit it to EPA until 180 days before he anticipates beginning closure. The Regional Administrator will approve or modify the plan within 90 days. During general status, owners or operators must submit this plan to the Regional Administrator along with Part B of the permit application. The Regional Administrator will then approve, disapprove or modify the post-closure plan. Once approved, the plan will be incorporated into the permit conditions.

Owners or operators may amend post-closure plans. Amendments are required in operating plans or facility design would affect post-closure plans. During interim status, amendments need not be submitted to EPA. During general status, the owner or operator must submit each amendment to the Regional Administrator for approval..

Comments, Response, and Rationale for Final Regulation

EPA's responses to all comments concerning post-closure plans are largely parallel with those addressed to comments on closure plans. Readers should refer to this document regarding §265.112 for an elaboration of these responses. The major change in §265.118 of the final regulation is the reworking of the post-closure plan approval process and the connected petition mechanism. The most significant modifications in §265.118 are (1) a six month time extension for post-closure plans; (2) the requirement that an owner or operator include in the plan the name, address and phone number of the person or office to contact about the disposal facility during the post-closure care period; (3) the addition of events occurring during the active life of the facility as a condition for modifying a post-closure plan; and (4) clarification that the Regional Administrator may disapprove as well as modify or approve a post-closure plan during the 180-day review period after its receipt; and (5) elaboration of procedures for approving and modifying post-closure plans.

The rationale for the shifting of §265.117(d) of the interim final to §265.118 of the final regulation is explained under the "Comments" section for §265.117. Essentially, this change makes more intelligible the approval and modification process for post-closure plans, including public participation in this process through petitioning.

The six month extension for preparing post-closure plans has been introduced for the same reasons as the extension for closure plans, which are outlined earlier in this Background Document under the "Comments and Rationale" for §265.112. Likewise, the rationale for the Regional Administrator's authority to call in post-closure plans is explained there.

The reason for requiring information in the post-closure plan for contacting the person responsible for the disposal facility is that EPA needs to be assured that access to the facility will be possible after closure and that corrective action could be taken should an emergency or other condition make it necessary.

That events, e.g., a fire or dike break, might occur during the active life of the facility which necessitate modifying the post-closure plan explains why this condition has been added to §265.118(b).

Finally, EPA has clarified the Regional Administrator's authority to disapprove post-closure plans during the review period, and the owner or operator is now given a second opportunity to modify his plan if the first version of it is unacceptable. After the second review, however, he must accept the Regional Administrator's modifications, if any are made.

Synopsis of §265.118 of the Final Interim Status Regulations

This Section of the final regulation generally parallels the interim final version, except that, as previously explained most of §265.117(d) of the interim final regulation now appears here in modified form.

Several changes have been made to the final interim status regulations. First, post-closure plans need not be prepared and on hand at the facility until May 19, 1981 rather than November 19, 1980. Only owners and operators planning to begin closure within 180 days after November 19, 1980 must submit post-closure plans at an earlier date.

Second, the plan must include the name, address, and phone number of the person to contact about the disposal facility during the post-closure care period.

Third, the owner or operator must amend his post-closure plan any time relevant events, in addition to changes in operating plans or facility design, occur during the active life of the facility. He must also amend the plan whenever changes in monitoring or maintenance plans or events occurring during the post-closure care period affect the plan.

Finally, the Regional Administrator will modify, approve or disapprove the plan within 90 days of its receipt and after providing the owner or operator and the affected public (through a newspaper notice) an opportunity to submit written comments.

Section §265.117(d) has been moved to §265.118 in the final regulation. The most important consequence of this is to clarify that all actions by owners or operators during the post-closure period must be done in accordance with their approved plans. Under these regulations, any member of the public, in addition to an owner or operator, may petition the Regional Administrator regarding post-closure care requirements. In contrast to the interim final regulations, any of these petitioners may request an alteration of the requirements of post-closure care based on cause. In the final regulations, the Regional Administrator may consider these petitions during the 180-day period before closure under Section 265.118(d) and (f) as well as any time thereafter. He may also convene a public hearing to discuss post-closure plans.

The final regulations modify the type of evidence required to be included in petitions so that it accords with corresponding changes in the purposes for petitioning. The interim final regulations only required evidence demonstrating that the facility is secure enough to make continuing the specified post-closure requirement(s) unnecessary (e.g., no detected leaks and none likely to occur, characteristics of the waste, application of advanced technology, or alternative disposal, treatment or re-use techniques). The final regulation adds that such evidence is also required in petitions which support a shortening of the post-closure care period, even if all the monitoring and maintenance requirements remain in effect.

Alternatively, in the final regulations, petitioners for extension of the post-closure care period or alteration of the post-closure requirements must submit evidence that such action is necessary to protect human health and the environment.

Unlike the interim final regulations, the final version allows the Regional Administrator to modify a post-closure plan, for instance by suspending one or more post-closure care requirements, if the owner or operator or any member of the public demonstrates just cause. At the end of this specified period of suspension, the Regional Administrator will determine whether the requirement(s) may be terminated or must be reinstated to protect human health and the environment.

The final regulations also clarify the Regional Administrator's . authority to act after the original specified period of post-closure care ends. In addition to determining whether post-closure care and maintenance requirements should be continued or terminated, the Regional Administrator may decide to alter them. The final regulations explicitly state that he may require an owner or operator to continue certain post-closure requirements for another specified period of time if necessary to protect human health or the environment.

§265.119 NOTICE TO LOCAL LAND AUTHORITY

EPA promulgated this Section of the regulation as final on May 19, 1980. However, EPA is resproposing this Section, to correspond to changes promulgated in §264.119.

§265.120. NOTICE IN DEED TO PROPERTY

EPA promulgated this Section of the regulation as final on May 19, 1980. However, EPA is reproposing this Section to correspond to changes promulgated in §264.120.

SUBPART G - CLOSURE AND POST-CLOSURE

§265.110 Applicability.

Except as §265.1 provides otherwise:

(a) Sections 265.111-265.115 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(b) Sections 265.117-265.120 (which concern post-closure care) apply to the owners and operators of all hazardous waste disposal facilities.

§265.111 Closure performance standard.

The owner or operator must close his facility in a manner that:

(a) Minimizes the need for further maintenance, and

(b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

§265.112 Closure plan; amendment of plan.

(a) By May 19, 1981, the owner or operator must have a written closure plan. He must keep a copy of the closure plan and all revisions to the plan at the facility until closure is completed and certified in accordance with §265.115. This plan must identify the steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which

will be unclosed during the life of the facility, and how the requirements of §§265.111, 265.113, 265.114, and 265.115 and the applicable closure requirements of §§265.197, 265.22[illegible], 265.280, 265.310, 265.351, 265.381, and 265.404 will be met;

(2) An estimate of the maximum inventory of wastes in storage and in treatment at any time during the life of the facility;

(3) A description of the steps needed to decontaminate facility equipment during closure; and

(4) An estimate of the expected year of closure and a schedule for final closure. The schedule must include, at a minimum, the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (For example, in the case of a landfill, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included.)

(b) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) The owner or operator must amend the plan whenever changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

(c) The owner or operator must submit his closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The owner or operator must submit his closure plan to the Regional Administrator no later than 15 days after:

(1) termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status; or

(2) issuance of a judicial decree or compliance order under Section 3008 of RCRA to cease receiving wastes or close.

[Comment: The date when closure commences should be within 30 days after the date on which the owner or operator expects to receive the final volume of wastes.]

(d) The Regional Administrator will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications of the plan within 30 days of the date of the notice. He will also, in response to a request or at his own discretion, hold a public hearing whenever such a hearing might clarify one or more issues concerning a closure plan. The Regional Administrator will give public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The Regional Administrator will approve, modify, or disapprove the plan within 90 days of its receipt. If the Regional Administrator does not approve the plan, the owner or operator must modify the plan or submit a new plan for approval within 30 days. The Regional Administrator will approve or modify this plan in writing within 60 days. If the Regional Administrator modifies the plan, this modified plan becomes the approved closure plan. The Regional Administrator's decision must assure that the approved closure plan is consistent with §§265.111, 265.113, 265.114, and 265.115 and the applicable requirements of §§265.197, 265.228, 265.280 265.310, 265.351, 265.381 and 265.404. A copy of this modified plan must be mailed to the owner or operator. If the owner or operator plans to begin closure before November 19, 1981 he must submit the closure plan by May 19, 1981.

§265.113 Closure; time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, the owner or operator must treat, remove from the site, or dispose of on-site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period using the procedures under §265.112(d) if the owner or operator demonstrates that:

(1)(i) The activities required to comply with this paragraph will, of necessity, take him longer than 90 days to complete; or

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment.

(b) The owner or operator must complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, if that is later. The Regional Administrator may approve a longer closure period using the procedures under §265.112(c) if the owner or operator demonstrates that:

(1)(i) The closure activities will, of necessity, take him longer than 180 days to complete; or

(ii)(A) The facility has the capacity to receive additional waste;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site;

(C) Closure of the facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but inactive facility.

[Comment: Under paragraphs (a)(1)(ii) and (b)(1)(ii), of this Section, if operation of the facility is recommenced, the Regional Administrator may defer completion of closure activities until the new operation is terminated.

§265.114 Disposal or decontamination of equipment.

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

§265.115 Certification of closure.

When closure is completed, the owner or operator must submit to the Regional Administrator certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

§265.116 [Reserved]

§265.117 Post-closure care and use of property.

(a) Post-closure care must continue for 30 years after the date of completing closure and must consist of at least the following:

(1) Ground-water monitoring and reporting in accordance with the requirements of Subpart F, and

(2) Maintenance of monitoring and waste containment systems as specified in §§265.91, 265.223, 265.228, 265.280, and 265.310, where applicable.

(b) The Regional Administrator may require continuation of any of the security requirements of §265.14 for 30 years after the date closure has been completed when:

(1) Wastes may remain exposed after completion of closure; or

(2) Access by the public or domestic livestock may pose a hazard to human health.

In extending any of these requirements the Regional Administrator will use the procedures of §265.118(c).

(c) Post-closure use of property on or in which hazardous wastes remain after closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of any containment system, or the function of the facility's monitoring systems, unless the owner or operator can demonstrate to the Regional Administrator, either in the post-closure plan or by petition, through the procedures in §265.118(c) or (f), as appropriate, that the disturbance:

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

(2) Is necessary to reduce a threat to human health or the environment.

(d) All post-closure care activities must be performed in accordance with the provisions of the approved post-closure plan as specified in §265.118.

§265.118 Post-closure plan; amendment of plan.

(a) By May 19, 1981, the owner or operator of a disposal facility must have a written post-closure plan. He must keep a copy of the post-closure plan and all revisions to the plan at the facility until the post-closure care period begins. The post-closure plan must identify the activities which will be carried on after closure and the frequency of these activities, and include at least:

(1) A description of the planned ground-water monitoring activities and frequencies at which they will be performed to comply with Subpart F during the post-closure period;

(2) A description of the planned maintenance activities and frequencies at which they will be performed, to ensure:

(i) The integrity of the cap and final cover or other containment structures as specified in §§265.223, 265.228, 265.280, and 265.310, where applicable; and

(ii) The function of the facility monitoring equipment as specified in §265.91; and

(3) The name, address and phone number of the person or office to contact about the disposal facility during the post-closure care period. This person or office must keep an updated post-closure plan during the post-closure care period.

(b) The owner or operator may amend his post-closure plan at any time during the active life of the disposal facility. The owner or operator must amend his plan any time changes in operating plans or facility design, or events which occur during the active life of the facility, affect his post-closure plan. The plan must be amended within 60 days after the changes or events occur.

(c) The owner or operator of a disposal facility must submit his post-closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The date when he "expects to begin clsoure" should be immediately after the date on which he expects to receive the final volume of wastes. The owner or operator must submit his closure plan to the Regional Administrator no later than 15 days after:

(1) Termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status); or

(2) issuance of a judicial decree or compliance order under Section 3008 of RCRA to cease receiving wastes or close.

[Comment: The date when closure commences should be within 30 days after the date on which the owner or operator expects to receive the final volume of wastes.

(d) The Regional Administrator will provide the owner or operator and the public through a newspaper notice the opportunity to submit written comments on the plan and request modifications of the plan including modification of the 30 year post-closure period required in §265.117 within 30 days of the date of the notice. He may also, in response to a request or at his own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning the post-closure plan. The Regional Administrator will give the public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for written public comments, and the two notices may be combined.) The Regional Administrator will approve, modify, or disapprove the plan within 90 days of its receipt. If the Regional Administrator does not approve the plan, the owner or operator must modify the plan or submit a new plan for approval within 30 days. The Regional Administrator will approve or modify this plan in writing within 60 days. If the Regional Administrator modifies the plan, this modified plan becomes the approved post-closure plan. The Regional Administrator must base his decision upon the criteria required of petitions under paragraph (f)(1)(i) of this Section. A copy of this modified plan must be mailed to the owner or operator. If an owner or operator plans to begin closure before November 19, 1981, he must submit the post-closure plan by May 19, 1981.

(e) The owner or operator may amend his post-closure plan during the post-closure care period. The owner or operator must amend his plan any time changes in monitoring or maintenance plans or events which occur during the post-closure care period affect the post-closure plan. The owner or operator must petition the Regional Administrator within 60 days of the changes or events, under the procedures of paragraph (f) of this section, to allow the plan to be modified.

(f) The post-closure plan (or period) may be modified during the post-closure care period or at the end of the post-closure care period in either of the following two ways:

(1) The owner or operator or any member of the public may petition the Regional Administrator to extend or reduce the post-closure care period based on cause, or alter the requirements of the post-closure care period based on cause.

(i) The petition must include evidence demonstrating that:

(A) The secure nature of the facility makes the post-closure care requirement(s) unnecessary or supports reduction of the post-closure care period specified in the current post-closure plan (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the facility is secure), or

(B) The requested extension in the post-closure care period or alteration of post-closure care requirements is necessary to prevent threats to human health and the environment.

(ii) These petitions will be considered by the Regional Administrator only when they present new and relevant information not previously considered by the Regional Administrator. Whenever the Regional Administrator is considering a petition, he will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments within 30 days of the date of the notice. He will also, in response to a request or at his own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning the post-closure plan. The Regional Administrator will give the public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for written public comments, and the two notices may be combined.) After considering the comments, he will issue a final determination, based upon the criteria set forth in subparagraph (1).

(iii) If the Regional Administrator denies the petition, he will send the petitioner a brief written response giving a reason for the denial.

(2) The Regional Administrator may tentatively decide to modify the post-closure plan if he deems it necessary to prevent threats to human health and the environment. He may propose to extend or reduce the post-closure care period based on cause or alter the requirements of the post-closure care period based on cause.

(i) The Regional Administrator will provide the owner or operator and the affected public, through a newpaper notice, the opportunity to submit written comments within 30 days of the date of the notice and the opportunity for a public hearing as in subparagraph(a)(1)(ii) of this Section. After considering the comments, he will issue a final determination.

(ii) The Regional Administrator will base his final determination upon the same criteria as required for petitions under paragraph(f)(1)(i) of this Section.

[Comment: A modification of the post-closure plan may include where appropriate the temporary suspension rather than permanent deletion of one or more post-closure care requirements. At the end of the specified period of suspension, the Regional Administrator would then determine whether the requirement(s) should be permanently discontinued or reinstated to prevent threats to human health and the environment.]

§265.119 Notice to local land authority.

Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local land authority and to the Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local land authority must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in §265.117(c). In addition, the owner or operator must submit to the Regional Administrator and to the local land authority a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. The owner or operator must identify the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept.

§265.120 Notice in deed to property.

The owner of the property on which a disposal facility is located must record, in accordance with State law, a notation on the deed to the facility property - or on some other instrument which is normally examined during title search - that will in perpetuity notify any potential purchaser of the property that: (1) the land has been used to manage hazardous waste, and (2) its use is restricted under §265,117(c).

§§265.121 - 265.139 [Reserved]

V. RATIONALE FOR GENERAL STATUS STANDARDS

INTRODUCTION

This section of the Background Document provides the rationale for the Part 264 General Status Standards for closure and post-closure care. The General Status Standards apply to new facilities which must obtain permits as conditions for operating and to facilities which initially operated under interim status and have subsequently been granted permits.

The Part 264 General Status Standards are largely similar to the final Part 265 Interim Status Standards for closure and post-closure care. The closure and post-closure care regulations are concerned primarily with administrative and procedural issues associated with properly closing hazardous waste management facilities and maintaining disposal facilities after closure. The Agency feels that most of the interim status procedures should also apply to facilities operating under general status. In addition to the administrative provisions, the closure regulations include a closure performance standard. The closure performance standard in the final Interim Status Standards is sufficiently stringent so that the Agency considers it unnecessary to make the standard for general status more stringent.

In developing the Part 264 General Status Standards, the Agency analyzed all the comments received on the proposed regulations and the interim final Interim Status Standards. This section of the Background Document provides a detailed rationale for those portions of the General Status Standards which differ from the final Interim Status Standards. For those sections which are the same as the final Interim Status Standards, the rationale is the same as that provided in Chapter IV of this document.

The significant difference between interim status and general status is that facilities operating with general status have permits. Some of the procedures and conditions included in the final Interim Status Standards for closure and post-closure care are now part of the permitting process, or are part of the permit conditions and are therefore included in the permit regulations rather than these regulations. For example, the procedures for submitting and approving closure and post-closure plans are specified in the permit application regulations. Similarly, all amendments to closure and post-closure plans, alterations of the post-closure care requirements, and changes in the duration of the post-closure care period are permit modifications and therefore subject to the procedures of §124.5. Some of these will be "minor modifications" under 40 CFR 122.17, which will allow simplified procedures to be used.

§§264.119 and 264.120 of the General Status Standards differ from the final Interim Status Standards. The Agency is reproposing these portions of the Interim Status Standards to make them consistent with the General Status Standards.

§§264.112(a) and (c) 264.118(a) CLOSURE AND POST-CLOSURE PLANS

Synopsis of the Final Interim Status Standards

Section 265.112 requires that all facility owners or operators prepare closure plans by May 19, 1981. Section 265.118 requires that owners or operators of disposal facilities prepare post-closure plans by the same date. The Regional Administrator may require that the plans be sent to him at any time. The Agency is not requiring that plans be submitted to the Regional Administrator unless requested so that EPA's resources can be used to implement the permit process. The plans, including all amendments, must be kept at the facility during the life of the facility. During the post-closure care period, the contact person or office will be responsible for keeping the post-closure plan.

Rationale for the General Status Standards

The General Status Standards apply to those owners and operators that have already received permits to operate hazardous waste management facilities. As part of the permitting process, the owner or operator will submit the plans which will be reviewed and approved, modified, or disapproved by the Regional Administrator. Approved closure plans (for all facilities) and post-closure plans (for disposal facilities) will be included as part of the permit conditions. Therefore, the owner or operator will have approved plans on the effective date of his permit. The owner or operator must keep a copy of these approved plans and any approved amendments to the plans at the facility during the life of the facility so that an authorized inspector may check the plans to be sure they reflect current facility conditions. Since no one may be at the facility during the post-closure care period, the contact person or office will retain a copy of the approved post-closure plan during this period.

§§264.112(b) and 264.118(b) AMENDMENT OF CLOSURE AND POST-CLOSURE PLANS

Synopsis of the Final Interim Status Standards

Sections 265.112(b) and 265.118(b) and (e) of the final Interim Status Standards allow owners or operators to amend their closure or post-closure plans at any time during the active life of the facility and, for post-closure plans, at any time during the post-closure period. Closure plans must be amended whenever changes in operating plans, facility design or the expected year of closure afect the closure plan. Post-closure plans must be amended whenever changes in operating plans, facility design or events which occur during the active life of the facility affect the post-closure plans. These amendments to the plans are to be kept at the facility but need not be submitted to the Regional Administrator.

Rationale for the General Status Standards

Owners or operators of facilities which are operating under the General Status Standards have already submitted their closure and post-closure plans with their permit applications and have had them approved as part of the permitting process. Since the approved plans are part of the permit conditions, all amendments to the plans are modifications to the permit and therefore subject to the conditions and procedures of §124.5 "Modification, revocation and reissuance, or termination of permits.

§264.112(d) CLOSURE NOTIFICATION

Synopsis of the Final Interim Status Standards

Sections 265.112(d) and 265.118(d) of the final Interim Status Standards require the owner or operator to submit closure and post-closure plans to the Regional Administrator at least 180 days before the date he expects to begin closure to allow time for the Regional Administrator to review and obtain public comments on the plans, and to modify, approve, or disapprove the plans. The six month period provides enough time for the owner or operator or the Regional Administrator to make any necessary modifications to the plans that are deemed necessary.

Rationale for the General Status Standards

The Agency feels that it is not necessary for owners or operators to resubmit their plans 180 days before closure is expected to begin because the plans have already been reviewed and approved as part of the permit process, and all amendments have also been approved in accordance with the procedures of §124.5. These procedures include providing the public the opportunity to submit written comments on closure and post-closure plans during the permit review process and when amendments to the plans are submitted. The Agency, therefore, does not think that it is necessary to again solicit public comments on the closure and post-closure plans 180 days before closure is to begin.

The General Status Standards do require that an owner or operator notify the Regional Administrator at least 180 days prior to the date he expects to begin closure so that the Agency can have time to ensure that the closure and post-closure plans are up-to-date and appropriate for the facility conditions.

§264.118(c) POST-CLOSURE PLAN MODIFICATIONS DURING POST-CLOSURE

§265.118(f) of the final Interim Status Standards specify the procedures for modifying the post-closure plan during the post-closure care period. The post-closure plan must be modified whenever there is a change in the post-closure care requirements. The owner or operator, or any member of the public or the Regional Administrator, may wish to alter the post-closure care requirements or to extend or reduce the duration of the post-closure care period specified in the post-clsoure plan. Any petition by the owner or operator or tentative decision by the Regional Administrator to alter the post-closure care requirements must include evidence demonstrating that either the secure nature of the facility makes the requirements specified in the post-closure plan (including the duration of the period) unnecessary or that the changes are necessary to protect human health and the environment. The Regional

Administrator must allow public comments on all petitions he deems justified as well as on his own tentative decision to modify the post-closure plan. If a Regional Administrator denies a petition, he must send a letter to the petitioner stating his reasons for the denial.

Rationale for the General Status Standards

During general status, all changes to the closure and post-closure plans are considered permit modifications, including changes made during the post-closure care period. Therefore, all modifications to the post-closure plan made during post-closure, including altering the post-closure care requirements and extending or reducing the post-closure care period, must comply with the permit modification procedures in §124.5.

§264.119 NOTICE TO LOCAL LAND AUTHORITY

Synopsis of the Final Interim Status Standards

Section 265.119 of the final Interim Status Standards requires that within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local land authority and to the Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas. He must also attach a note stating his obligation to restrict disturbance of the site as specified in the post-closure regulations. The owner or operator is also required to submit a record of the type, location, and quantity of wastes disposed of within each cell or area of the facility to the local land authority and to the Regional Administrator.

Rationale for the General Status Standards

The General Status Standards differ from the final Interim Status Standards in order to clarify the intent of the requirement. The Agency is concerned that the term local land authority may have different connotations in different localities; therefore, in the General Status Standards, the owner or operator is required to submit the survey plat and the record of wastes to the local zoning authority or the authority with jurisdiction over local land use. The Agency also realizes that under certain conditions (e.g., cleanup of a contingency) the type, location, or quantity of hazardous wastes disposed of within a particular cell or area of the facility may change. Therefore, an owner or operator must report any changes in the type, location, and quantity of hazardous wastes disposed of within the disposal area to the local zoning authority or the authority with jurisdiction over local land use.

§264.120 NOTICE IN DEED TO PROPERTY

Synopsis of the Final Interim Status Standards

Section 265.120 requires that an owner of the property on which a disposal facility is located must record a notation on the deed (or other instrument normally examined during title search) stating that the land has been used to manage hazardous wastes and its use is restricted under Section 265.117(c).

Rationale for the General Status Standards

The General Status Standards are different from the final Interim Final Standards in order to strengthen the assurance that a future owner or operator will have full knowledge of the previous uses of the land. The notation must indicate that the land has been used to manage hazardous wastes, its use is restricted under 264.117(c), and that a survey plat and a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility have been filed with the local zoning authority or the authority with jurisdiction over local land use.

SUBPART G - CLOSURE AND POST-CLOSURE

§264.110 Applicability.

Except as §264.1 provides otherwise:

(a) Sections 264.111 - 264.115 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(b) Sections 264.117 - 264.120 (which concern post-closure care) apply to the owners and operators of all hazardous waste disposal facilities.

§264.111 Closure performance standard.

The owner or operator must close his facility in a manner that:

(a) Minimizes the need for further maintenance, and

(b) Controls, minimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

§264.112 Closure plan; amendment of plan.

(a) The owner or operator of a hazardous waste management facility must have a written closure plan. The plan must be submitted with the permit application, in accordance with §122.25(a)(13) of this Chapter, and approved by the Regional Administrator as part of the permit issuance proceeding under Part 124 of this Chapter. In accordance with §122.29 of this Chapter, the approved closure plan will become a condition of any RCRA permit. The Regional Administrator's decision must assure that that approved closure plan is consistent with §§264.111, 264.113, 264.114, 264.115 and the applicable requirements of §§264.178, 264.197, 264.228, and 264.258. A copy of the approved plan and all revisions to the plan must be kept at the facility until closure is completed and certified in accordance with §264.115. The plan must identify steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of §§264.111, 264.113, 264.114, 265.115 and the applicable closure requirements of §§264.178, 264.197, 264.228, and 264.258 will be met;

(2) An estimate of the maximum inventory of wastes in storage and in treatment at any time during the life of the facility. (Any change in this estimate is a minor modification under §122.17);

(3) A description of the steps needed to decontaminate facility equipment during closure; and

(4) An estimate of the expected year of closure and a schedule for final closure. The schedule must include, at a minimum, the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (For example, in the case of a landfill, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included).

(b) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received). The owner or operator must amend the plan whenever changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure. When the owner or operator requests a permit modification to authorize a change in operating plans or facility design, he must request a modification of the closure plan at the same time (see §124.5(a)). If a permit modification is not needed to authorize the change in operating plans or facility design, the request for modification of the closure plan must be made within 60 days after the change in plans or design occurs.

[Comment: Changes in estimates of maximum inventory and of the estimated year of closure under §264.112(a)(2) and (4) may be made as minor permit modifications under §122.17(e)]

(c) The owner or operator must notify the Regional Administrator at least 180 days prior to the date he expects to begin closure.

[Comment: the date when he "expects to begin closure" should be within 30 days after the date on which he expects to receive the final volume of wastes. If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or compliance order under Section 3008 of RCRA, to cease receiving wastes or to close, then the requirement of this paragraph does not apply. However, the owner or operator must close the facility in accordance with the deadlines established in §264.113]

§264.113 Closure; time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, the owner or operator must treat, remove from the site, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if the owner or operator demonstrates that:

(1)(i) The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete: or

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment.

(b) The owner or operator must complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes. The Regional Administrator may approve a longer closure period if the owner or operator demonstrates that:

(1)(i) The closure activities will, of necessity, take longer than 180 days to complete; or

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but inactive facility.

[Comment: Any extension of the 90 or 180 day period in this Section may be made as a minor modification under §122.17.

Under paragraphs (a)(1)(ii) and (b)(1)(ii) of this Section, if operation of the site is recommenced, the Regional Administrator may defer completion of closure activities until the new operation is terminated.]

§264.114 Disposal or decontamination of equipment.

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

§264.115 Certification of closure.

When closure is completed, the owner or operator must submit to the Regional Adminstrator certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

§264.116 [Reserved]

§264.117 Post-closure care and use of property.

(a)(1) Post-closure care must continue for 30 years after the date of completing closure and must consist of at least the following:

(i) Ground-water monitoring and reporting as applicable.

(ii) Maintenance of monitoring and waste containment systems as applicable.

(2)(i) During the 180-day period preceding closure (see §264.112(c)) or at any time thereafter, the Regional Administrator may reduce the post-closure care period to less than 30 years if he finds that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the facility is secure).

(ii) Prior to the time that the post-closure care period is due to expire, the Regional Administrator may extend the post-closure care period if he finds that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of waste at levels which may be harmful to human health and the environment).

(b) The Regional Administrator may require, at closure, continuation of any of the security requirements of §264.14 during part or all of the post-closure period after the date of completing closure when:

(1) Wastes may remain exposed after completion of closure; or

(2) Access by the public or domestic livestock may pose a hazard to human health.

(c) Post-closure use of property on or in which hazardous wastes remain after closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of any containment system, or the function of the facility's monitoring systems, unless the Regional Administrator finds that the disturbance:

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

(2) Is necessary to reduce a threat to human health or the environment.

(d) All post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in §264.118.

§264.118 Post-closure plan; amendment of plan.

(a) The owner or operator of a disposal facility must have a written post-closure plan. The plan must be submitted with the permit application, in accordance with §122.25(a)(13) of this Chapter, and approved by the Regional Administrator as part of the permit issuance proceeding under Part 124 of this Chapter. In accordance with §122.29 of this Chapter, the approved post-closure plan will become a condition of any permit issued. A copy of the approved plan and all revisions to the plan must be kept at the facility until the post-closure care period begins. This plan must identify the activities which will be carried on after closure and the frequency of these activities, and include at least:

(1) A description of the planned ground-water monitoring activities and frequencies at which they will be performed;

(2) A description of the planned maintenance activities, and frequencies at which they will be performed, to ensure:

(i) The integrity of the cap and final cover or other containment structures where applicable; and

(ii) the function of the facility monitoring equipment; and

(3) The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period. This person or office must keep an updated post-closure plan during the post-closure period.

(b) The owner or operator may amend his post-closure plan at any time during the active life of the disposal facility or during the post-closure care period. The owner or operator must amend his plan whenever changes in operating plans or facility design, or events which occur during the active life of the facility or during the post-closure period, affect his post-closure plan. He must also amend his plan whenever there is a change in the expected year of closure.

(c) When a permit modification is requested during the active life of the facility to authorize a change in operating plans or facility design, modification of the post-closure plan must be requested at the same time (see §124.5(a)). In all other cases, the request for modification of the post-closure plan must be made within 60 days after the change in operating plans or facility design or the events which affect his post-closure plan occur.

§264.119 Notice to local land authority.

Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local zoning authority or the authority with jurisdiction over local land use must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in 264.117(c). In addition, the owner or operator must submit to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept. Any changes in the type, location, or quantity of hazardous wastes disposed of within each cell or area of the facility that occur after the survey plat and record of wastes have been filed must be reported to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator.

§264.120 Notice in deed to property.

(a) The owner of the property on which a disposal facility is located must record, in accordance with State law, a notation on the deed to the facility property--or on some other instrument which is normally examined during title search--that will in perpetuity notify any potential purchaser of the property that:

(1) The land has been used to manage hazardous wastes;

(2) Its use is restricted under §264.117(c); and

(3) The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility required in §265.119 have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Regional Administrator of the Environmental Protection Agency.

(b) If at any time the owner or operator or any subsequent owner of the land upon which a hazardous waste facility was located removes the waste and waste residues, the liner, if any, and all contaminated underlying and surrounding soil, he may remove the notation on the deed to the facility property or other instrument normally examined during title search, or he may add a notation to the deed or instrument indicating the removal of the waste.

[Comment: On removing the waste and waste residues, the liner, if any, and the contaminated soil, the owner or operator, unless he can demonstrate in accordance with §261.3 (d) of this Chapter that any solid waste removed is not a hazardous waste, becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262-266 of this Chapter.]

§§264.121 - 264.139 [Reserved]